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Massachusetts Executive Office of Environmental Affairs
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Data on Sediment Quality and Concentrations of Polychlorinated Biphenyls from the Lower Neponset River, Massachusetts, 2002–03

Open-File Report 2004-1280

U.S. Department of the Interior
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Conversion Factors and Abbreviations

Multiply	By	To obtain
inch (in.)	25.4	millimeter (mm)
mile (mi)	1.609344	kilometer (km)

Temperature in degrees Celsius (°C) may be converted to degrees Fahrenheit (°F) as follows:
°F = 1.8°C + 32

Horizontal coordinate information is referenced to the North American Datum of 1983 (NAD 83).

Concentrations of sediment-quality constituents are give in percent (%), parts per million (ppm), and parts per billion (ppb). Concentrations of water-quality constituents are given in nanograms per hexane sample (ng/hexane sample).

ACOE	U.S. Army Corps of Engineers
EOEA	Executive Office of Environmental Affairs
EPH	extractable petroleum hydrocarbons
NETLAB	New England Testing Laboratory
ng	nanogram
PAHs	polyaromatic hydrocarbons
PCBs	polychlorinated biphenyls
PES	performance-evaluation samples
ppb	parts per billion
ppm	parts per million
USEPA	U.S. Environmental Protection Agency
USGS	U.S. Geological Survey

Data on Sediment Quality and Concentrations of Polychlorinated Biphenyls from the Lower Neponset River, Massachusetts, 2002–03

By Robert F. Breault[1], Matthew G. Cooke[1], and Michael Merrill[2]

Abstract

The U.S. Geological Survey, in cooperation with the Massachusetts Executive Office of Environmental Affairs Department of Fish and Game Riverways Program, and the U.S. Environmental Protection Agency, studied sediment and water quality in the lower Neponset River, which is a tributary to Boston Harbor. Grab and core samples of sediment were tested for elements and organic compounds including polyaromatic hydrocarbons, organochlorine pesticides, and polychlorinated biphenyls. Physical properties of sediment samples, including grain size, were also measured. Selected sediment-core samples were tested for reactive sulfides and metals by means of the toxicity characteristic leaching procedure, which are sediment-disposal-related tests. Water quality, with respect to polychlorinated biphenyl contamination, was determined by testing samples collected by PISCES passive-water-column samplers for polychlorinated biphenyl congeners. Total concentrations of polychlorinated biphenyls were calculated by congener and by Aroclor.

Introduction

The Neponset River, which was America's most industrialized river during the early 1700s, drains parts of, and areas adjacent to, the city of Boston, Massachusetts. A byproduct of this early industrialization was dams, which were constructed mostly for purposes of power production. Today (2003), 11 dams impound the 29-mi Neponset River main stem, but no longer serve their original purposes.

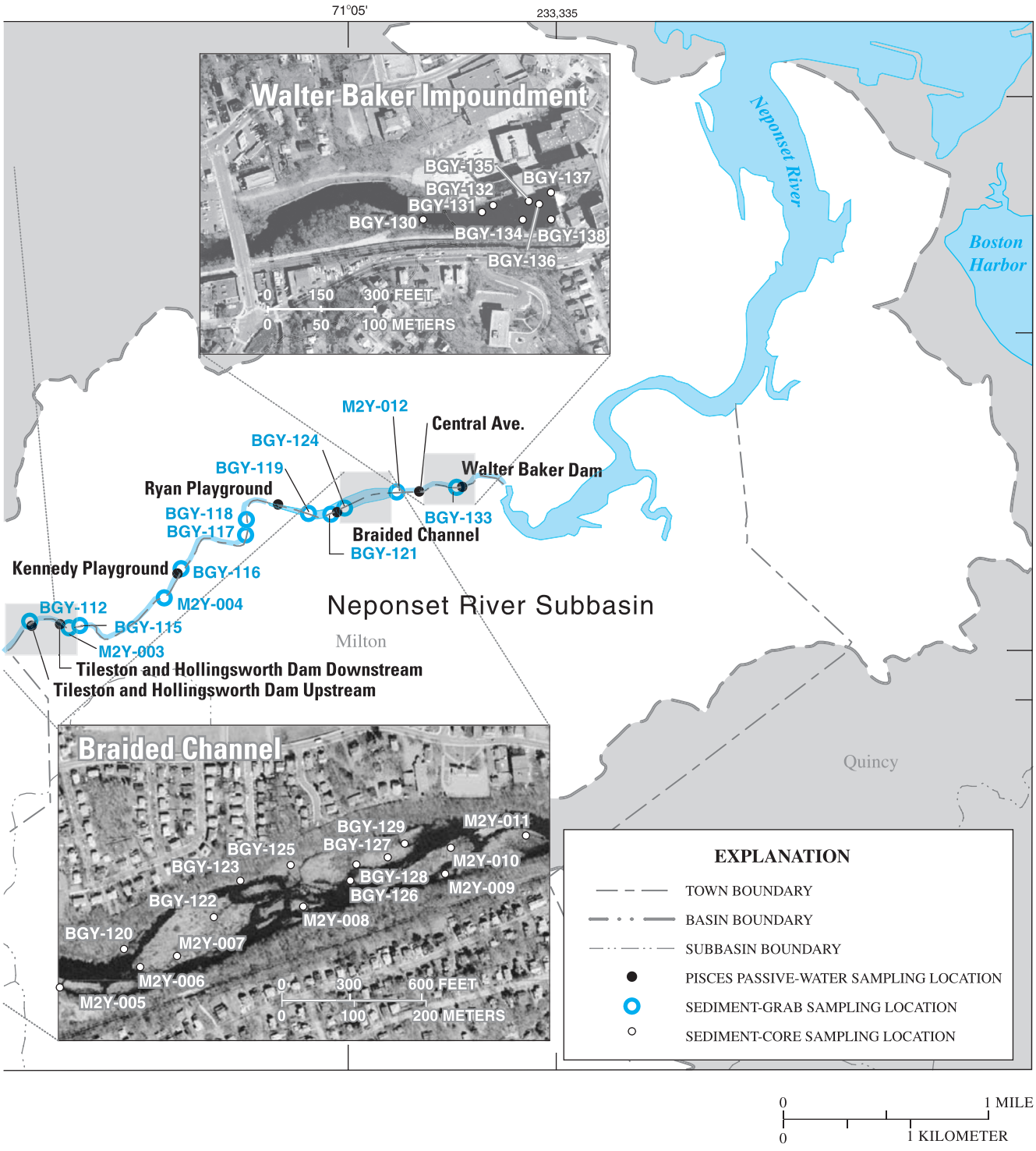
Damming of the Neponset River has ended almost all fish migration and has limited the recreational use of the river. For these and other reasons, environmental managers and local advocates have proposed river-restoration efforts such as channel restoration for habitat improvements and fish-passage alternatives, including the installation of engineered fishways, breaching, and removal of the most downstream dams on the lower Neponset River—the Walter Baker Dam and the Tileston and Hollingsworth Dam (fig. 1) (U.S. Army Corps of Engineers, written commun., 2002). Fish passage at these dams would provide access to more than 17 mi of riverine habitat to migratory fish and help increase recreational use of the lower Neponset River, that section of the river from Fowl Meadow to the Walter Baker Dam in Milton, Massachusetts (U.S. Army Corps of Engineers, written commun, 2002).

[1]U.S. Geological Survey.

[2]Massachusetts Executive Office of Environmental Affairs Department of Fish and Game Riverways Program.

Base map coverages from MassGIS, NAD 83 Lambert Conformal Polyconic projection, Massachusetts coordinate system mainland zone in meters

Figure 1. The study area, sediment-grab and sediment-core sampling locations, and the locations where PISCES passive -



water-column samplers for the detection of polychlorinated biphenyls were deployed, lower Neponset River, Massachusetts.

Perhaps the most important long-term effect of dams is the accumulation of contaminants in the slack water and in the impounded sediments behind the dams. Little is known, however, about the magnitude and extent of the contamination behind the dams in the lower Neponset River. In fact, only one (2002) study of the lower Neponset River done by the U.S. Army Corps of Engineers (ACOE) included the collection and chemical analysis of sediment (U.S. Army Corps of Engineers, written commun, 2002). During this study, one sediment-core sample was collected from the Walter Baker impoundment and one sediment-core sample was collected from the Tileston and Hollingsworth impoundment. These bottom-sediment cores were found to be enriched in many contaminants, most notably polychlorinated biphenyls (PCBs).

Increased public dialogue about restoration of the Neponset River and limited knowledge about the geographic distribution and magnitude of contamination by PCBs and other substances in the lower Neponset River prompted this study of sediment and water quality. The U.S. Geological Survey (USGS) completed this study in 2002–03 in cooperation with the Massachusetts Executive Office of Environmental Affairs (EOEA) Department of Fish and Game Riverways Program, and the U.S. Environmental Protection Agency (USEPA).

This report presents sediment and water-quality data collected from the Neponset River in 2002 and 2003. Samples of sediment and water were collected at 63 sampling stations along the lower Neponset River by sediment-grab samplers (20 sites), sediment-core samplers (31 sites), and PISCES passive-water-column samplers (12 sites). The samples were tested for concentrations of elements, polyaromatic hydrocarbons (PAHs), PCBs, and organochlorine pesticides, and also for grain-size distribution. The interpretation of these data in light of urban restoration efforts can be found in the companion U.S. Geological Survey Scientific Investigations Report entitled “Sediment Quality and Polychlorinated Biphenyls in the Lower Neponset River, and Implications for Urban River Restoration and Dam Removal” (Breault and others, 2004).

The authors express their gratitude to the following people for their cooperation and assistance: with sampling, USGS colleagues Stacey Archfield, John Colman, Andrew Massey, Timothy McCobb, and Vicki-Rose Siegel; for technical and editorial assistance, James Coles, Leslie DeSimone, Gregory Granato, Steven Smith, Marcus Waldron, Anne Weaver, and Peter Weiskel, as well as Karen Pelto of the Massachusetts Executive Office of Environmental Affairs Department of Fish and Game Riverways Program and Steven Lipman of the Massachusetts Department of Environmental Protection; for laboratory analytical and operational assistance, William Andrade, Thomas Faber, Robert Maxfield, and Charles Porfert of the U.S. Environmental Protection Agency, Libby Shrieve of the USGS Sediment Laboratory, and Joseph Foley of the New England Testing Laboratory.

Methods of Collecting Data of Sediment Quality and Concentrations of Polychlorinated Biphenyls

Sediment-quality data, including inorganic and organic chemistry and physical properties, and water-quality data with respect to PCB concentrations in the lower Neponset River were obtained from samples collected by sediment-grab, sediment-core, and PISCES passive-water-column samplers. Details of study methods can be found in Breault and others (2004).

Sample-Collection Techniques

In October 2002, sediment-grab samples were collected from 20 randomly selected locations (Scott, 1990) between Fowl Meadow and the Walter Baker Dam (table 1; fig 1). An Eckman dredge, stainless-steel scoop, or stainless-steel spoon were used to collect sediment-grab samples; the choice of the collection device depended on the water depth. The top 4 in. (if available) of the sample was either removed from the dredge or scooped from the sediment surface, homogenized, screened

through a 6-mm sieve, placed in precleaned containers, and stored on ice for overnight delivery to the appropriate laboratory (table 2), with one exception. The downstream sediment-grab sample BGY-139 was not sieved.

Sediment-core samples were collected between December 2002 and February 2003 (table 1). A random-sampling design, similar to the sediment-grab sampling design, was used to collect the 31 sediment cores. Sediment-core sampling locations, however, were limited to areas of sediment deposition just upstream of the Walter Baker and Tileston and Hollingsworth Dams and within the braided channel (the former Jenkins Dam impoundment, fig. 1).

A hand corer with a disposable 2.5-in. inside-diameter Lexan-core barrel was used to collect sediment cores. The core barrel was pushed or hammered into the sediment until it could be driven no farther. Core samples were homogenized, placed in precleaned containers, and stored on ice for overnight delivery to the appropriate laboratory (table 2), as were the grab samples; however, sediment core samples were not sieved (Breault and others, 2004).

In August 2002, samples for analysis of PCBs in water were collected according to a deterministic sampling design (fig. 1). PCB passive-water-column samplers (PISCES) were placed at 12 locations throughout the study area (table 3) (Litten and others, 1993). Samplers were also placed upstream and downstream of Mother Brook, as well as within Mother Brook, a tributary to the Neponset River.

Laboratory Analysis

Sediment samples were analyzed for a suite of elements and organic compounds commonly found in rivers that drain historically urban and industrial watersheds. Analytical methods are listed in table 2. XRAL Laboratory of Ontario, Canada, analyzed the sediment samples for elements and total organic carbon (TOC, tables 4–5). The USEPA New England Regional Laboratory, Chelmsford, Massachusetts, analyzed sediment samples for a suite of organic compounds including PCBs and organochlorine pesticides (tables 6–8); six sediment-grab samples were analyzed for polyaromatic hydrocarbons (PAHs; tables 6–7). In addition, the USEPA also tested selected sediment cores for metals extracted by the toxicity characteristic leaching procedure (TCLP) (table 9).

The New England Testing Laboratory (NETLAB) of North Providence, Rhode Island, analyzed sediment-core samples for extractable petroleum hydrocarbons (EPH; table 8). The longest cores from each impoundment and from the braided channel were selected for reactive sulfide analysis, which was completed by NETLAB (data not shown; all reactive sulfide values were measured at less than the detection limit of 5 ppm). Grain-size distributions were measured by the USGS Sediment Laboratory in Louisville, Kentucky (table 10).

AXYS Analytical Services of Sydney, British Columbia, Canada, completed analyses for PCBs collected by the PISCES samplers. Samples were analyzed for 209 individual PCB congeners (tables 11–13). Aroclor concentrations were estimated from PCB congener data. Several sediment samples were also tested for PCB congeners by AXYS Analytical Services (tables 14–16). Those samples were selected on the basis of PISCES PCB congener data and represented locations upstream and downstream of a suspected PCB source. Colman (2000) gives a detailed description of Aroclor and PCB congener laboratory analysis.

Bias and Variability

Water-quality and sediment-quality data are subject to bias (or systematic error) and variability (or random error) during sample collection, processing, and analysis. The nature and magnitude of bias and variability can be determined by analysis of quality-control samples including blanks, field duplicates, laboratory duplicates, matrix spikes, matrix-spike duplicates, and performance-evaluation samples (PES) (tables 4–5, 7–16). With a few exceptions, bias and variability in this study were generally within acceptable limits (Charles Porfert, U.S. Environmental Protection Agency, written commun, 2002). Most notable is bias due to potential chromium contamination by the

equipment used for collection and processing of sediment-grab samples (stainless-steel dredge, bowl, and spoon), excluding sample BGY-139. Therefore, chromium values for sediment-grab samples, which were homogenized in a stainless-steel bowl and mixed with the stainless-steel spoon, are not included. As a result of this bias, the standard operating procedure for sediment sampling was changed to include using a precleaned nylon spoon (instead of a stainless steel spoon) to scoop sediment from the dredge without contacting any part of the dredge, and compositing the sediment in disposable precleaned Teflon bags (in place of the stainless steel bowl); sediment-grab sample BGY-139 was also collected by using this modified procedure. The amount of contamination bias was relatively low compared to the chromium concentrations measured in the sediment cores (processed using the modified procedure); however, to avoid misinterpretation of the data, chromium values were not included (Breault and others, 2004).

References Cited

Breault, R.F., Cooke, M.G., and Merrill, Michael, 2004, Sediment quality and polychlorinated biphenyls in the lower Neponset River, Massachusetts, and implications for urban river restoration and dam removal: U.S. Geological Survey Scientific Investigations Report 2004-5109, 48 p.

Colman, J.A., 2000, Source identification and fish exposure for polychlorinated biphenyls using congener analysis from passive water samplers in the Millers River Basin, Massachusetts: U.S. Geological Survey Water-Resources Investigations Report 00-4250, 44 p.

Litten, S., Mead, B., and Hassett, J., 1993, Application of passive samplers (PISCES) to locating a source of PCBs on the Black River, New York: Environmental Toxicology and Chemistry, v. 12, p. 639–647.

Scott, J.C., 1990, Computerized stratified random site-selection approached across the conterminous United States: Environmental Science and Technology; v. 33, no. 15, p. 2499–2504.

Tables 1–16

Table 1. Sediment-grab and sediment-core sampling locations and time of sampling, lower Neponset River, Massachusetts.

[USGS, U.S. Geological Survey]

USGS number	Date and time		State plane coordinates, in meters	
			Easting	Northing
Sediment-Grab Sampling Locations				
BGY-100	10-02-02	8:18	231,148.63	887,168.62
BGY-101	10-02-02	9:00	230,958.07	887,519.43
BGY-102	10-02-02	10:00	230,706.00	887,978.52
BGY-103	10-02-02	10:20	230,731.99	888,380.45
BGY-104	10-02-02	11:00	231,078.47	889,012.78
BGY-105	10-02-02	11:20	231,354.79	889,173.03
BGY-106	10-02-02	12:00	231,530.63	889,402.57
BGY-107	10-02-02	12:30	231,745.45	889,724.80
BGY-112	10-02-02	13:00	232,093.67	890,114.60
M2Y-003	10-02-02	15:30	232,401.00	890,087.87
BGY-115	10-02-02	16:00	232,487.18	890,108.19
BGY-116	10-02-02	12:30	233,296.44	890,561.52
M2Y-004	10-02-02	15:00	233,157.71	890,327.50
BGY-117	10-02-02	12:00	233,813.96	890,830.16
BGY-118	10-02-02	11:15	233,817.19	890,953.21
BGY-119	10-02-02	11:00	234,314.76	891,002.36
BGY-121	10-02-02	10:30	234,494.85	890,994.46
BGY-124	10-02-02	10:00	234,604.62	891,046.12
M2Y-012	10-02-02	9:30	235,025.07	891,176.71
BGY-133	10-02-02	9:00	235,501.41	891,208.91
Sediment-Core Sampling Locations Walter Baker Impoundment				
BGY-130	12-18-02	10:30	235,413.94	891,208.50
BGY-131	12-18-02	11:00	235,482.25	891,217.13
BGY-132	12-18-02	11:30	235,495.30	891,225.00
BGY-134	12-18-02	13:00	235,529.78	891,208.25
BGY-135	12-18-02	12:00	235,536.77	891,229.69
BGY-136	12-18-02	12:30	235,548.88	891,226.88
BGY-137	12-18-02	13:30	235,562.39	891,239.94
BGY-138	12-18-02	14:00	235,562.86	891,209.63

USGS number	Date and time		State plane coordinates, in meters	
			Easting	Northing
Sediment-Core Sampling Locations Braided Channel				
M2Y-005	1-09-03	10:00	234,365.02	890,968.13
BGY-120	1-08-03	10:45	234,429.17	891,022.19
M2Y-006	1-08-03	11:15	234,450.80	890,997.69
M2Y-007	1-08-03	12:15	234,503.42	891,012.81
BGY-122	1-08-03	12:45	234,556.05	891,066.13
BGY-123	1-09-03	10:35	234,592.81	891,117.31
BGY-125	1-09-03	11:00	234,664.19	891,139.69
M2Y-008	1-09-03	12:00	234,681.48	891,081.31
BGY-126	1-09-03	12:25	234,747.09	891,118.06
BGY-127	1-18-03	13:00	234,756.28	891,142.00
BGY-128	1-09-03	13:30	234,800.27	891,151.38
BGY-129	1-09-03	14:00	234,824.05	891,170.13
M2Y-009	2-11-03	11:45	234,880.64	891,127.25
M2Y-010	2-11-03	12:00	234,889.30	891,164.00
M2Y-011	2-11-03	11:00	234,995.98	891,181.31
Sediment-Core Sampling Locations Tileston and Hollingsworth Impoundment				
BGY-108	12-19-02	10:30	231,991.86	890,013.13
BGY-109	12-19-02	11:30	232,021.58	890,061.19
BGY-110	12-19-02	12:00	232,046.48	890,090.88
BGY-111	12-19-02	12:30	232,058.72	890,102.25
BGY-113	12-19-02	13:00	232,098.48	890,116.69
M2Y-001	12-19-02	13:15	232,120.33	890,110.13
BGY-114	12-19-02	14:15	232,129.95	890,144.19
M2Y-002	12-19-02	13:45	232,130.39	890,118.00

Table 2. Laboratories and analytical methods.

[TCLP, toxicity characteristic leaching procedure; USEPA, U.S. Environmental Protection Agency; NETLAB, New England Testing Laboratory; USGS, U.S. Geological Survey]

Constituent	Sample type	Laboratory	Analytical technique
Elements	Bottom sediment	XRAL	Inductively coupled plasma mass spectroscopy
TCLP trace metals	Bottom sediment	USEPA	Inductively coupled plasma mass spectroscopy
Reactive sulfides	Bottom sediment	NETLAB	Titrimetry
Polyaromatic hydrocarbons	Bottom sediment	USEPA	Gas chromatography with electron-capture detection
Extractable petroleum hydrocarbons	Bottom sediment	NETLAB	Gas chromatography with flame-ionization detection
Organochlorine pesticides	Bottom sediment	USEPA	Gas chromatography with electron-capture detection
Polychlorinated biphenyls	Bottom sediment	USEPA	Gas chromatography with electron-capture detection
Polychlorinated biphenyls	Bottom sediment	AXYS Analytical	Low-resolution quadrupole mass selective detection
Polychlorinated biphenyls	Hexane	AXYS Analytical	Low-resolution quadrupole mass selective detection
Grain-size distribution	Bottom sediment	USGS	Gravimetry
Total solids	Bottom sediment	USEPA	Gravimetry

Table 3. Locations, deployment intervals, and physical properties of water at sites sampled for polychlorinated biphenyls by PISCES passive-water-column samplers, lower Neponset River, Massachusetts.

[T&H, Tileston and Hollingsworth; °C, degrees Celsius; µS/cm, microsiemens per centimeter]

Station name	Sample number	Date and time deployed	Date retrieved	Number of days deployed	Specific conductance (µS/cm)	Temperature (°C)	State plane coordinates, in meters	
							Easting	Northing
Paul's Bridge	17	8-06-02 10:00	8-23-02 11:00	17.04	398	26.3	231,138.43	887,163.84
	18	8-06-02 10:00	8-23-02 11:00	17.04	398	26.3		
Martini Shell	19	8-06-02 10:30	8-23-02 11:30	17.04	567	26.6	230,732.06	888,141.67
	20	8-06-02 10:30	8-23-02 11:30	17.04	567	26.6		
Incinerator Road	23	8-06-02 11:30	8-23-02 12:20	17.03	441	29.0	227,337.28	889,542.08
	24	8-06-02 11:30	8-23-02 12:20	17.03	441	29.0		
Reservation Park	21	8-06-02 11:00	8-23-02 11:50	17.03	486	29.0	230,572.10	888,943.01
	22	8-06-02 11:00	8-23-02 11:50	17.03	486	29.0		
Fairmont Avenue	15	8-03-02 11:30	8-20-02 12:00	17.02	492	26.3	231,474.16	889,338.38
	16	8-03-02 11:30	8-20-02 12:00	17.02	492	26.3		
T&H Dam upstream	13	8-03-02 10:55	8-20-02 11:45	17.03	503	25.9	232,116.15	890,101.56
	14	8-03-02 10:55	8-20-02 11:45	17.03	503	25.9		
T&H Dam downstream	11	8-03-02 10:30	8-20-02 11:30	17.04	512	25.8	232,343.06	890,111.39
	12	8-03-02 10:30	8-20-02 11:30	17.04	512	25.8		
Kennedy Playground	9	8-03-02 10:00	8-20-02 11:00	17.04	528	24.8	233,281.86	890,518.50
	10	8-03-02 10:00	8-20-02 11:00	17.04	528	24.8		
Ryan Playground	7	8-03-02 8:30	8-20-02 10:45	17.09	540	24.1	234,089.63	891,067.10
	8	8-03-02 8:30	8-20-02 10:45	17.09	540	24.1		
Braided channel	5	8-03-02 9:05	8-20-02 10:30	17.06	538	24.3	234,555.98	891,005.87
	6	8-03-02 9:05	8-20-02 10:30	17.06	538	24.3		
Central Avenue	3	8-03-02 8:05	8-20-02 9:30	17.06	537	23.7	235,216.89	891,176.52
	4	8-03-02 8:05	8-20-02 9:30	17.06	537	23.7		
Walter Baker Dam	1	8-03-02 7:45	8-20-02 9:00	17.05	520	24.6	235,565.80	891,213.10
	2	8-03-02 7:45	8-20-02 9:00	17.05	520	24.6		

Table 4. Concentrations of total organic carbon and elements in sediment-grab samples collected from the lower Neponset River, Massachusetts.

[D, duplicate; LD, laboratory duplicate; RPD, relative percent different; TOC, total organic carbon; USGS, U.S. Geological Survey; ppm, parts per million; <, actual value is less than value shown; *, both quality-assurance samples less than detection limit; --, no data]

USGS number	TOC (percent)	Calcium (percent)	Magnesium (percent)	Sodium (percent)	Potassium (percent)	Phosphorus (percent)	Beryllium (ppm)	Aluminum (percent)	Antimony (ppm)	Arsenic (ppm)	Barium (ppm)
Detection Limit	0.01	0.01	0.01	0.01	0.01	0.01	0.5	0.01	5	3	1
BGY-100	.94	.32	.21	.04	.13	.02	<.5	.62	<5	<3	43
BGY-101	.39	.39	.25	.07	.21	.03	<.5	.81	<5	<3	63
BGY-102	.26	.26	.2	.06	.14	.03	<.5	.6	<5	<3	44
BGY-103	.69	.32	.22	.06	.19	.03	<.5	.71	<5	<3	56
BGY-104	4.05	.32	.19	.04	.1	.05	.5	.65	<5	<3	58
BGY-105	10.37	.55	.29	.06	.18	.1	.9	1.18	<5	6	131
BGY-106	7.45	.48	.33	.04	.14	.11	.8	1.07	<5	6	106
BGY-107	4.77	.42	.23	.06	.17	.05	.7	.92	<5	3	83
BGY-112	6	.44	.31	.05	.17	.08	.8	1.04	<5	4	92
BGY-112-D	5.66	.4	.24	.03	.12	.08	.7	.9	<5	<3	80
M2Y-003	1.97	.36	.32	.08	.22	.05	.8	.9	<5	<3	89
BGY-115	1.29	.52	.47	.06	.23	.05	.6	1.14	<5	<3	71
M2Y-004	.26	.54	.47	.04	.18	.04	.6	1.1	<5	<3	104
BGY-116	.2	.78	.57	.07	.3	.05	.7	1.46	<5	<3	108
BGY-117	2.67	.25	.19	.03	.12	.04	<.5	.54	<5	<3	51
BGY-118	1.08	.43	.27	.05	.2	.04	.5	.85	<5	<3	68
BGY-118-D	1.16	.35	.24	.04	.12	.04	<.5	.7	<5	<3	63
BGY-119	.59	.54	.42	.05	.19	.04	.6	1.06	<5	<3	66
BGY-121	5.41	.49	.32	.05	.22	.08	.8	1.6	<5	20	123
BGY-124	.45	.42	.35	.04	.21	.04	.5	.93	<5	<3	91
M2Y-012	7.39	.49	.24	.11	.25	.08	.6	1.02	9	<3	147
BGY-133	14.76	.54	.24	.04	.12	.13	.8	.93	<5	6	150
BGY-100-LD, IN RPD	3	7	13	29	8	0	*	12	*	*	10
BGY-116-LD, IN RPD	11	14	82	0	7	0	15	6	*	*	11

Table 4. Concentrations of total organic carbon and elements in sediment-grab samples collected from the lower Neponset River, Massachusetts.—Continued

[D, duplicate; LD, laboratory duplicate; RPD, relative percent different; TOC, total organic carbon; USGS, U.S. Geological Survey; ppm, parts per million; <, actual value is less than value shown; *, both quality-assurance samples less than detection limit; --, no data]

USGS number	Bismuth (ppm)	Cadmium (ppm)	Chromium (ppm)	Cobalt (ppm)	Copper (ppm)	Iron (percent)	Lantha-num (ppm)	Lead (ppm)	Lithium (ppm)	Manga-nese (ppm)	Molyb-denum (ppm)
Detection Limit	5	1	1	1	0.5	0.01	0.5	2	1	2	1
BGY-100	<5	<1	--	3	9	.96	9.7	20	4	206	<1
BGY-101	<5	<1	--	4	8.8	1.17	10.3	15	5	225	<1
BGY-102	<5	<1	--	3	7.7	1.09	9.3	19	3	153	<1
BGY-103	<5	<1	--	4	13	1.15	9.6	30	4	181	2
BGY-104	<5	<1	--	5	34.9	1.39	10.8	75	4	223	<1
BGY-105	<5	1	--	10	115	2.88	16.1	210	9	657	8
BGY-106	<5	1	--	9	84.7	2.92	17.1	171	8	456	2
BGY-107	<5	<1	--	8	57.4	2.01	14.1	138	7	287	4
BGY-112	<5	<1	--	7	67.8	2.39	15.2	138	10	390	3
BGY-112-D	<5	<1	--	6	56.4	2.2	13.9	135	9	382	1
M2Y-003	<5	<1	--	7	24.2	2.07	12.6	67	7	454	3
BGY-115	<5	<1	--	8	24	2.28	14.8	46	11	461	<1
M2Y-004	<5	<1	--	10	14.8	2.13	14.5	19	11	1,790	7
BGY-116	<5	<1	--	9	14.5	2.47	17	15	12	1,090	<1
BGY-117	<5	<1	--	4	35	1.48	9.8	94	4	201	2
BGY-118	<5	<1	--	5	25.2	2.14	13.5	55	7	556	2
BGY-118-D	<5	<1	--	5	20.5	2.11	11.1	50	7	505	2
BGY-119	<5	<1	--	7	13.7	2.11	14.8	30	10	498	2
BGY-121	<5	1	--	7	158	1.76	14.3	393	14	611	3
BGY-124	<5	<1	--	7	10.2	1.87	14.6	23	7	1,090	1
M2Y-012	<5	<1	--	10	57.6	2.86	13.2	119	6	1,330	9
BGY-133	<5	2	--	10	85.4	2.52	13.9	207	8	1,530	2
BGY-100-LD, in RPD	*	*	--	0	7	8	11	11	29	7	*
BGY-116-LD, in RPD	*	*	--	0	12	5	11	7	18	2	*

Table 4. Concentrations of total organic carbon and elements in sediment-grab samples collected from the lower Neponset River, Massachusetts.—Continued

[D, duplicate; LD, laboratory duplicate; RPD, relative percent different; TOC, total organic carbon; USGS, U.S. Geological Survey; ppm, parts per million; <, actual value is less than value shown; *, both quality-assurance samples less than detection limit; --, no data]

USGS number	Nickel (ppm)	Scandium (ppm)	Silver (ppm)	Strontium (ppm)	Tin (ppm)	Titanium (percent)	Tungsten (ppm)	Vanadium (ppm)	Yttrium (ppm)	Zinc (ppm)	Zirconium (ppm)
Detection Limit	1	0.5	0.2	0.5	10	0.01	10	2	0.5	0.5	0.5
BGY-100	11	1.3	.3	38.5	<10	.06	<10	21	5.2	44.1	5.6
BGY-101	13	1.5	<.2	50.1	<10	.06	<10	26	5.8	41.2	7.6
BGY-102	11	1	<.2	31.1	<10	.05	<10	22	4.7	36.2	6.3
BGY-103	14	1.3	.4	40.5	<10	.06	<10	25	5.2	47.4	6.7
BGY-104	15	1.4	.3	32	<10	.06	<10	28	6.6	152	5
BGY-105	46	2.5	1	56.4	19	.07	<10	52	10.9	387	7.3
BGY-106	26	2.4	.9	45.8	16	.08	<10	51	10.8	292	6.5
BGY-107	27	2.2	.6	46.2	10	.07	<10	43	8.5	218	8
BGY-112	26	2.3	.6	45.3	10	.07	<10	43	9.5	224	7.6
BGY-112-D	23	2	.8	41	<10	.06	<10	36	8.5	194	7.1
M2Y-003	23	2	.4	44.6	<10	.07	<10	40	7.3	103	11.8
BGY-115	20	2.5	.5	61.8	<10	.1	<10	50	8.7	72.3	11.9
M2Y-004	36	2.8	1.2	62.1	<10	.09	<10	39	8.6	88	9.9
BGY-116	19	3.7	.8	92.2	<10	.11	<10	47	10.4	62.8	10.7
BGY-117	16	1	.3	23.3	<10	.05	<10	29	5.3	123	6.7
BGY-118	17	2	.4	44.9	<10	.07	<10	39	7.2	84.5	11
BGY-118-D	29	1.3	.3	38.1	<10	.06	<10	29	6.7	85	9.7
BGY-119	17	2.5	.6	53.6	<10	.08	<10	38	8.7	79.7	11.8
BGY-121	19	2.4	.9	58.2	44	.07	<10	35	8.9	329	9.5
BGY-124	15	2	.9	46.5	<10	.07	<10	32	7.7	77.4	12.4
M2Y-012	39	1.9	1.4	50.2	<10	.07	<10	58	7.8	219	8.1
BGY-133	22	1.7	1.1	46.5	11	.05	<10	39	9.2	402	4.1
BGY-100-LD, in RPD	10	26	0	4	*	18	*	10	2	11	4
BGY-116-LD, in RPD	5	18	13	8	*	9	*	0	6	7	3

Table 5. Concentrations of total organic carbon and elements in sediment-core samples collected from the lower Neponset River, Massachusetts.

[D, duplicate; LD, laboratory duplicate; RPD, relative percent different; TOC, total organic carbon; USGS, U.S. Geological Survey; ppm, parts per million; <, actual value is less than value shown; *, both quality-assurance samples less than detection limit]

USGS number	TOC (percent)	Calcium (percent)	Magnesium (percent)	Sodium (percent)	Potassium (percent)	Phosphorus (percent)	Beryllium (ppm)	Aluminum (percent)	Antimony (ppm)	Arsenic (ppm)	Barium (ppm)
Detection Limit	0.01	0.01	0.01	0.01	0.01	0.01	0.5	0.01	5	3	1
BGY-108	4.86	.49	.42	.05	.16	.14	.8	1.47	<5	5	125
BGY-109	5.13	.56	.51	.07	.28	.14	1.1	2.02	<5	6	163
BGY-110	3.56	.49	.48	.13	.17	.12	.8	1.48	<5	4	113
BGY-111	4.5	.45	.5	.05	.22	.12	1	1.79	<5	6	149
BGY-113	4.98	.42	.38	.05	.15	.11	.7	1.2	<5	4	120
BGY-113-D	4.51	.48	.43	.08	.27	.1	.8	1.41	<5	<3	123
M2Y-001	4.3	.38	.34	.04	.15	.1	.7	1.16	<5	4	106
BGY-114	5.53	.59	.59	.09	.39	.16	1.4	2.44	<5	8	213
M2Y-002	6.94	.44	.39	.05	.14	.15	1	1.41	<5	6	129
M2Y-005	4.91	.37	.29	.05	.14	.11	.7	1.28	<5	5	104
BGY-120	3.63	.41	.35	.06	.23	.09	.7	1.2	<5	<3	102
BGY-120-D	3.17	.35	.34	.04	.14	.09	.7	1.03	<5	3	88
M2Y-006	2.63	.35	.31	.08	.15	.09	.5	.98	7	3	91
M2Y-007	6.47	.49	.35	.09	.26	.14	1	1.52	6	6	146
BGY-122	6.71	.42	.38	.09	.25	.17	1.1	2.09	5	8	152
BGY-123	6.94	.52	.38	.08	.22	.17	1.1	1.73	<5	7	141
BGY-125	5.76	.33	.32	.05	.17	.12	.7	1.46	<5	5	105
M2Y-008	6.71	.43	.34	.07	.2	.15	.9	1.86	<5	9	139
BGY-126	6.06	.33	.23	.04	.11	.08	.6	1.17	<5	7	92
BGY-127	6.12	.42	.35	.07	.19	.16	1	1.72	<5	7	134
BGY-128	6.6	.34	.32	.05	.11	.16	.9	1.59	<5	8	118
BGY-128-D	6.79	.36	.32	.05	.12	.16	.9	1.64	<5	8	118
BGY-129	6.27	.38	.33	.07	.19	.15	1	2.02	<5	9	140
M2Y-009	5.97	.39	.32	.03	.11	.14	.6	1.45	<5	5	98
M2Y-010	6.79	.32	.31	.02	.08	.15	.6	1.33	<5	8	117
M2Y-011	6.68	.33	.29	.02	.08	.12	.6	1.45	<5	8	109
BGY-130	8.14	.32	.25	.05	.15	.07	.7	1	<5	12	104
BGY-131	2.81	.37	.32	.07	.24	.06	.6	1.02	<5	4	84
BGY-132	10.18	.53	.37	.06	.27	.18	1.2	3.19	<5	17	197
BGY-134	1.95	.35	.31	.07	.22	.06	.6	.96	<5	<3	80
BGY-135	11.17	.57	.4	.06	.26	.23	1.3	3.92	<5	13	182
BGY-136	6.87	.34	.27	.05	.16	.1	.7	1.2	<5	26	128
BGY-136-D	7.28	.37	.29	.06	.22	.11	.7	1.48	7	35	146
BGY-137	11.66	.46	.39	.05	.18	.19	1.2	2.62	<5	15	160
BGY-138	7.33	.49	.32	.06	.16	.1	.7	1.44	<5	6	89
BGY-130-LD, in RPD	.4	0	0	0	7	13	0	2	*	8	2
BGY-125-LD, in RPD	3	6	6	18	11	8	25	6	*	18	7
M2Y-011-LD, in RPD	2	0	0	0	0	8	0	1	*	12	2
M2Y-001-LD, in RPD	.7	17	9	22	18	0	13	12	*	0	6

Table 5. Concentrations of total organic carbon and elements in sediment-core samples collected from the lower Neponset River, Massachusetts.—Continued

[D, duplicate; LD, laboratory duplicate; RPD, relative percent different; TOC, total organic carbon; USGS, U.S. Geological Survey; ppm, parts per million; <, actual value is less than value shown; *, both quality-assurance samples less than detection limit]

USGS number	Bismuth (ppm)	Cadmium (ppm)	Chromium (ppm)	Cobalt (ppm)	Copper (ppm)	Iron (percent)	Lanthanum (ppm)	Lead (ppm)	Lithium (ppm)	Manganese (ppm)	Molybdenum (ppm)
Detection Limit	5	1	1	1	0.5	0.01	0.5	2	1	2	1
BGY-108	<5	3	391	10	113	2.24	23.5	307	13	365	2
BGY-109	<5	3	495	12	121	2.97	28.7	311	19	516	7
BGY-110	<5	2	701	14	101	2.43	21.1	220	17	365	7
BGY-111	<5	2	311	11	111	2.56	26.9	251	19	416	2
BGY-113	<5	2	429	8	118	1.97	20.2	312	11	336	3
BGY-113-D	<5	2	685	10	109	2.83	21	252	12	390	12
M2Y-001	<5	2	320	8	94.8	1.93	19.5	212	11	309	5
BGY-114	<5	3	544	14	154	3.68	34	321	22	518	9
M2Y-002	<5	3	310	10	140	2.23	23.2	363	13	386	3
M2Y-005	<5	2	561	7	85.1	2.04	18.7	283	10	459	4
BGY-120	<5	2	390	8	55.5	2.12	19.8	211	11	471	7
BGY-120-D	<5	1	291	7	56.1	1.92	18.2	212	10	462	2
M2Y-006	<5	2	1,140	12	67.6	2.14	16.7	197	8	443	11
M2Y-007	<5	2	926	12	93.7	3.69	23.5	297	13	1370	16
BGY-122	<5	2	869	11	138	3.88	25	447	13	714	17
BGY-123	<5	2	648	11	123	3.16	25.6	407	15	1,000	10
BGY-125	<5	1	469	8	85.4	2.51	20.6	288	11	529	4
M2Y-008	<5	1	753	9	141	2.72	24.1	392	13	550	11
BGY-126	<5	<1	389	6	121	1.32	16.7	216	11	246	2
BGY-127	<5	2	611	11	111	2.93	24.3	365	14	848	9
BGY-128	<5	2	370	8	129	2.23	22.5	396	13	634	3
BGY-128-D	<5	2	378	8	127	2.24	22.4	392	13	623	3
BGY-129	<5	1	728	8	144	2.6	24.1	428	15	419	10
M2Y-009	<5	1	318	7	99.6	2.01	18.5	383	9	491	3
M2Y-010	<5	2	134	8	116	2.15	17.8	420	9	701	2
M2Y-011	<5	2	163	8	124	1.9	18.4	325	10	448	2
BGY-130	<5	1	599	9	217	1.87	14.8	345	11	274	3
BGY-131	<5	<1	377	7	94.7	2.08	16.3	141	11	295	7
BGY-132	<5	3	609	11	327	2.18	23.8	792	21	365	4
BGY-134	<5	<1	316	7	25.2	1.92	17.3	156	10	322	6
BGY-135	<5	5	406	12	292	2.33	24.9	659	23	420	7
BGY-136	<5	2	590	8	148	1.75	15.8	473	12	339	3
BGY-136-D	<5	2	965	8	184	2.02	16.6	599	16	381	4
BGY-137	<5	5	421	12	264	2.6	23.5	800	20	463	4
BGY-138	<5	2	639	9	120	2.39	15.6	207	11	402	11
BGY-130-LD, in RPD	*	0	2	0	.9	3	5	5	0	2	29
BGY-125-LD, in RPD	*	0	7	12	7	5	7	8	9	6	0
M2Y-011-LD, in RPD	*	0	.6	0	.8	.5	.5	.3	0	1.1	0
M2Y-001-LD, in RPD	*	0	4	12	3	4	6	3	9	8	0

Table 5. Concentrations of total organic carbon and elements in sediment-core samples collected from the lower Neponset River, Massachusetts.—Continued

[D, duplicate; LD, laboratory duplicate; RPD, relative percent different; TOC, total organic carbon; USGS, U.S. Geological Survey; ppm, parts per million; <, actual value is less than value shown; *, both quality-assurance samples less than detection limit]

USGS number	Nickel (ppm)	Scandium (ppm)	Silver (ppm)	Strontium (ppm)	Tin (ppm)	Titanium (percent)	Tungsten (ppm)	Vanadium (ppm)	Yttrium (ppm)	Zinc (ppm)	Zirconium (ppm)
Detection Limit	1	0.5	0.2	0.5	10	0.01	10	2	0.5	0.5	0.5
BGY-108	30	3.7	.7	44.8	19	.1	<10	59	13.5	280	6.2
BGY-109	39	5.2	.5	54.9	20	.12	<10	64	17	299	9.7
BGY-110	337	4	.2	37	19	.11	<10	53	12	406	7.5
BGY-111	31	4.8	.4	40.7	26	.12	<10	62	15.3	284	8.5
BGY-113	28	2.9	.7	42.3	25	.09	<10	54	11	299	7.5
BGY-113-D	41	3.6	.5	54.8	22	.1	<10	53	11.9	260	10.2
M2Y-001	26	3	.6	41.8	22	.09	<10	46	10.6	243	5.9
BGY-114	47	6.4	.6	58.7	32	.14	<10	77	19.7	415	12.5
M2Y-002	31	3.3	.8	41	26	.1	<10	61	13.3	376	5.4
M2Y-005	27	2.9	.8	41.1	20	.08	<10	52	10.9	209	4.7
BGY-120	27	2.9	.4	45.9	16	.09	<10	40	10.6	180	7.4
BGY-120-D	22	2.5	.3	38.3	17	.08	<10	40	9.8	156	6.3
M2Y-006	484	2.3	.3	38.3	16	.08	<10	38	9	168	4.8
M2Y-007	48	3.6	.7	54.2	21	.1	<10	59	14.1	202	5.9
BGY-122	52	4.3	.6	43.5	25	.11	<10	78	14.6	205	6.7
BGY-123	40	4	.8	54.7	26	.1	<10	65	15.5	231	5.2
BGY-125	25	3.1	.4	38.5	21	.09	<10	56	11.4	158	5
M2Y-008	37	3.9	.7	48.7	28	.11	<10	65	14.2	195	5.6
BGY-126	17	2.5	.4	35.8	24	.07	<10	34	9.2	208	3.8
BGY-127	37	4	.7	45.3	23	.1	<10	66	14.3	211	5.4
BGY-128	26	3.4	.6	35.8	25	.09	<10	66	13.2	186	3.1
BGY-128-D	26	3.6	.8	38.6	24	.09	<10	66	13.3	184	3.5
BGY-129	36	4	.6	43.8	27	.1	<10	65	14.1	170	4.1
M2Y-009	26	2.7	.6	37	<10	.07	<10	54	11.1	217	3.9
M2Y-010	21	2.5	.9	31.1	11	.06	<10	53	11.6	210	2.7
M2Y-011	20	2.8	.6	34.6	14	.07	<10	47	11.9	277	3.6
BGY-130	25	2.2	.9	39.1	25	.07	<10	35	8.9	279	7.5
BGY-131	24	2.4	.2	40.8	24	.08	<10	36	8.6	139	10.8
BGY-132	43	5.1	.9	61.3	62	.09	<10	179	14.2	588	10.1
BGY-134	21	2.2	.2	41.6	<10	.08	<10	30	8.2	119	11.2
BGY-135	46	5.8	1.2	62.3	28	.09	<10	142	15.7	1030	10.2
BGY-136	22	2.2	.7	39.9	44	.06	<10	33	8.7	376	7.3
BGY-136-D	29	2.4	.7	44.7	60	.06	<10	39	9.4	453	8.3
BGY-137	39	4.7	1	52.3	303	.09	<10	102	14.4	737	7.6
BGY-138	36	3	.4	88.3	16	.1	<10	55	9.7	278	6.8
BGY-130-LD, in RPD	4	0	12	2	25	0	*	3	1	5	1
BGY-125-LD, in RPD	4	9	22	6	0	0	*	9	8	6	8
M2Y-011-LD, in RPD	0	0	0	1	25	0	*	2	.8	.4	11
M2Y-001-LD, in RPD	7	13	18	9	0	11	*	6	10	2	16

Table 6. Concentrations of constituents measured in a composited sediment-grab sample collected from the estuarine part of the lower Neponset River just downstream of the Walter Baker Dam, Massachusetts.

[BHC, 1,2,3,4,5,6-hexachlorocyclohexane; DDD, dichlorodiphenyldichloroethane; DDE, dichlorodiphenyldichloroethylene; DDT, dichlorodiphenyltrichlorethane; ppb, parts per billion; ppm, parts per million; <, less than]

Constituent	Concentration
Elements (percent)	
Calcium	0.36
Magnesium	.56
Sodium	.37
Potassium	.31
Phosphorus	.11
Aluminum	1.35
Elements (ppm)	
Antimony	<5
Arsenic	10
Barium	61
Bismuth	<5
Cadmium	<1
Chromium	261
Cobalt	7
Copper	90.5
Lanthanum	16.9
Lead	355
Lithium	23
Manganese	322
Molybdenum	2
Nickel	24
Scandium	3.3
Silver	1.7
Strontium	46.5
Tin	<10
Titanium	.07
Tungsten	<10
Vanadium	40
Yttrium	10.4
Zinc	185
Zirconium	10.5
Polyaromatic Hydrocarbons (ppb)	
Acenaphthene	45
Acenaphthylene	60
Anthracene	190
Benzo(*a*)anthracene	790
Benzo(*a*)pyrene	870
Benzo(*b*)fluoranthene	1,500
Benzo(*ghi*)perylene	700
Benzo(*k*)fluoranthene	500
Chrysene	980
Dibenzo(*a,h*)anthracene	150
Fluoranthene	1,800
Fluorene	61
Indeno(1,2,3-cd)pyrene	620
Naphthalene	73
Phenanthrene	930
Pyrene	1,800
Polychlorinated Biphenyls (ppb)	
Aroclor (1016)	<100
Aroclor (1221)	<100
Aroclor (1232)	<100
Aroclor (1242)	840
Aroclor (1248)	<100
Aroclor (1254)	700
Aroclor (1260)	100
Aroclor (1262)	<100
Aroclor (1268)	<100
Organochlorine Pesticides (ppb)	
4,4′-DDD	22
4,4′-DDE	33
4,4′-DDT	12
Aldrin	<5
Alpha Chlordane	<5
alpha-BHC	<5
beta-BHC	<5
delta-BHC	<5
Dieldrin	<5
Endosulfan I	<5
Endosulfan II	<5
Endosulfan sulfate	<5
Endrin	<5
Endrin aldehyde	<5
Endrin ketone	<5
gamma Chlordane	<5
gamma-BHC	<5
Heptachlor	<5
Heptachlor epoxide	<5
Methoxychlor	<5
Chlordane (technical)	<100
Toxaphene	<100

Table 7. Concentrations of polyaromatic hydrocarbons, polychlorinated biphenyls, and organochlorine pesticides in sediment-grab samples collected from the lower Neponset River, Massachusetts.

[BHC, 1,2,3,4,5,6-hexachlorocyclohexane; DDD, dichlorodiphenyldichloroethane; DDE, dichlorodiphenyldichloroethylene; DDT, dichlorodiphenyltrichlorethane; MS, matrix spike; MSD, matrix-spike duplicate; PR, Percent Recovery; RPD, relative percent difference; USGS, U.S. Geological Survey; ppb, parts per billion; <, actual value is less than value shown; --, no data]

USGS number	Polyaromatic hydrocarbons												
	Acenaphthene (ppb)	Acenaphthylene (ppb)	Anthracene (ppb)	Benzo(*a*)-anthracene (ppb)	Benzo(*a*)-pyrene (ppb)	Benzo(*b*)-fluoranthene (ppb)	Benzo(*ghi*)-perylene (ppb)	Benzo(*k*)-fluoranthene (ppb)	Chrysene (ppb)	Dibenzo(*a,h*)-anthracene (ppb)	Fluoranthene (ppb)	Fluorene (ppb)	Indeno(1,2,3-cd)-pyrene (ppb)
BGY-100	6.8	3.3	17.0	86.9	115	220	108	66.8	148	22.8	287	10.2	116
BGY-101	--	--	--	--	--	--	--	--	--	--	--	--	--
BGY-102	--	--	--	--	--	--	--	--	--	--	--	--	--
BGY-103	--	--	--	--	--	--	--	--	--	--	--	--	--
BGY-104	61.3	30.6	220	1,040	1,170	1,960	913	540	1,460	215	2,430	96.5	1,030
BGY-105	--	--	--	--	--	--	--	--	--	--	--	--	--
BGY-106	--	--	--	--	--	--	--	--	--	--	--	--	--
BGY-107	--	--	--	--	--	--	--	--	--	--	--	--	--
BGY-112	99	75	398	1,880	2,210	3,570	1,670	1,010	2,690	383	4,480	154	1,900
BGY-112-D	636	81	1,650	4,330	4,370	6,520	2,970	2,100	4,610	726	9,850	637	3,370
M2Y-003	--	--	--	--	--	--	--	--	--	--	--	--	--
BGY-115	--	--	--	--	--	--	--	--	--	--	--	--	--
M2Y-004	--	--	--	--	--	--	--	--	--	--	--	--	--
BGY-116	--	--	--	--	--	--	--	--	--	--	--	--	--
BGY-117	--	--	--	--	--	--	--	--	--	--	--	--	--
BGY-118	--	--	--	--	--	--	--	--	--	--	--	--	--
BGY-118-D	--	--	--	--	--	--	--	--	--	--	--	--	--
BGY-119	--	--	--	--	--	--	--	--	--	--	--	--	--
BGY-121	90.6	109	632	2,390	1,680	2,370	907	821	2,710	270	4,850	280	1,050
BGY-124	--	--	--	--	--	--	--	--	--	--	--	--	--
M2Y-012	--	--	--	--	--	--	--	--	--	--	--	--	--
BGY-133	363	134	1,130	4,180	4,380	7,040	2,840	1,900	5,230	754	9,120	454	3,370
Blank	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7
Blank	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7
MS, in percent recovery	88	75	106	114	106	102	96	95	100	97	75	99	100
MSD, in RPD	3	8	1	4	6	12	10	4	6	10	6	1	8

Table 7. Concentrations of polyaromatic hydrocarbons, polychlorinated biphenyls, and organochlorine pesticides in sediment-grab samples collected from the lower Neponset River, Massachusetts.—Continued

[BHC, 1,2,3,4,5,6-hexachlorocyclohexane; DDD, dichlorodiphenyldichloroethane; DDE, dichlorodiphenyldichloroethylene; DDT, dichlorodiphenyltrichlorethane; MS, matrix spike; MSD, matrix-spike duplicate; PR, Percent Recovery; RPD, relative percent difference; USGS, U.S. Geological Survey; ppb, parts per billion; <, actual value is less than value shown; --, no data]

USGS number	Polyaromatic hydrocarbons—*Continued*					Polychlorinated biphenyls						
	Naphthalene (ppb)	Phenanthrene (ppb)	Pyrene (ppb)	2-Fluorobiphenyl (PR)	Terphenyl (PR)	Aroclor 1016 (ppb)	Aroclor 1221 (ppb)	Aroclor 1232 (ppb)	Aroclor 1242 (ppb)	Aroclor 1248 (ppb)	Aroclor 1254 (ppb)	Aroclor 1260 (ppb)
BGY-100	12.3	115	249	105	107	<170	<170	<170	<170	<170	<170	<170
BGY-101	--	--	--	--	--	<160	<160	<160	<160	<160	<160	310
BGY-102	--	--	--	--	--	<160	<160	<160	<160	<160	<160	<160
BGY-103	--	--	--	--	--	<160	<160	<160	<160	<160	<160	<160
BGY-104	97.3	1,270	2,590	113	125	<100	<100	<100	<100	<100	800	170
BGY-105	--	--	--	--	--	<380	<380	<380	6,900	<380	3,400	280
BGY-106	--	--	--	--	--	<350	<350	<350	5,800	<350	2,300	580
BGY-107	--	--	--	--	--	<170	<170	<170	2,200	<170	1,300	220
BGY-112	152	2,330	4,510	95	100	<330	<330	<330	4,100	<330	1,800	970
BGY-112-D	221	7,200	10,300	110	127	<330	<330	<330	3,900	<330	1,900	910
M2Y-003	--	--	--	--	--	<330	<330	<330	7,100	<330	2,100	840
BGY-115	--	--	--	--	--	<170	<170	<170	480	<170	240	<170
M2Y-004	--	--	--	--	--	<160	<160	<160	240	<160	<160	<160
BGY-116	--	--	--	--	--	<160	<160	<160	360	<160	<160	<160
BGY-117	--	--	--	--	--	<160	<160	<160	320	<160	210	<160
BGY-118	--	--	--	--	--	<160	<160	<160	<160	<160	<160	<160
BGY-118-D	--	--	--	--	--	<160	<160	<160	<160	<160	<160	<160
BGY-119	--	--	--	--	--	<160	<160	<160	<160	<160	<160	<160
BGY-121	379	1,330	5,420	110	127	<160	<160	<160	320	<160	<160	<160
BGY-124	--	--	--	--	--	<160	<160	<160	160	<160	<160	<160
M2Y-012	--	--	--	--	--	<160	<160	<160	3,300	<160	1,100	680
BGY-133	238	6,000	9,470	109	125	<160	<160	<160	<160	<160	<160	<160
Blank	<1.7	<1.7	<1.7	77	89	<200	<200	<200	<200	<200	<200	<200
Blank	<1.7	<1.7	<1.7	94	105	--	--	--	--	--	--	--
MS, in percent recovery	81	99	109	--	--	--	--	--	--	--	--	--
MSD, in RPD	6	3	6	--	--	--	--	--	--	--	--	--

Table 7. Concentrations of polyaromatic hydrocarbons, polychlorinated biphenyls, and organochlorine pesticides in sediment-grab samples collected from the lower Neponset River, Massachusetts.—Continued

[BHC, 1,2,3,4,5,6-hexachlorocyclohexane; DDD, dichlorodiphenyldichloroethane; DDE, dichlorodiphenyldichloroethylene; DDT, dichlorodiphenyltrichlorethane; MS, matrix spike; MSD, matrix-spike duplicate; PR, Percent Recovery; RPD, relative percent difference; USGS, U.S. Geological Survey; ppb, parts per billion; <, actual value is less than value shown; --, no data]

USGS number	Polychlorinated biphenyls—*Continued*		Organochlorine pesticides											
	Aroclor 1262 (ppb)	Aroclor 1268 (ppb)	4,4′-DDD (ppb)	4,4′-DDE (ppb)	4,4′-DDT (ppb)	Aldrin (ppb)	Alpha Chlordane (ppb)	alpha-BHC (ppb)	beta-BHC (ppb)	delta-BHC (ppb)	Dieldrin (ppb)	Endosulfan I (ppb)	Endosulfan II (ppb)	Endosulfan sulfate (ppb)
BGY-100	<170	<170	<8.5	<8.5	<8.5	<8.5	<8.5	<8.5	<8.5	<8.5	<8.5	<8.5	<8.5	<8.5
BGY-101	<160	<160	<8.0	<8.0	<8.0	<8.0	<8.0	<8.0	<8.0	<8.0	<8.0	<8.0	<8.0	<8.0
BGY-102	<160	<160	<8.0	<8.0	<8.0	<8.0	<8.0	<8.0	<8.0	<8.0	<8.0	<8.0	<8.0	<8.0
BGY-103	<160	<160	<8.0	<8.0	<8.0	<8.0	<8.0	<8.0	<8.0	<8.0	<8.0	<8.0	<8.0	<8.0
BGY-104	<100	<100	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
BGY-105	<380	<380	<19	<19	<19	<19	<19	<19	<19	<19	<19	<19	<19	<19
BGY-106	<350	<350	<18	<18	<18	<18	<18	<18	<18	<18	<18	<18	<18	<18
BGY-107	<170	<170	<8.5	<8.5	<8.5	<8.5	<8.5	<8.5	<8.5	<8.5	<8.5	<8.5	<8.5	<8.5
BGY-112	<330	<330	<16	<16	<16	<16	<16	<16	<16	<16	<16	<16	<16	<16
BGY-112-D	<330	<330	<16	<16	<16	<16	<16	<16	<16	<16	<16	<16	<16	<16
M2Y-003	<330	<330	<16	<16	<16	<16	<16	<16	<16	<16	<16	<16	<16	<16
BGY-115	<170	<170	<8.5	<8.5	<8.5	<8.5	<8.5	<8.5	<8.5	<8.5	<8.5	<8.5	<8.5	<8.5
M2Y-004	<160	<160	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8
BGY-116	<160	<160	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8
BGY-117	<160	<160	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8
BGY-118	<160	<160	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8
BGY-118-D	<160	<160	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8
BGY-119	<160	<160	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8
BGY-121	<160	<160	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8
BGY-124	<160	<160	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8
M2Y-012	<160	<160	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8
BGY-133	<160	<160	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8
Blank	<200	<200	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Blank	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MS, in percent recovery	--	--	--	--	88	90	--	--	--	--	109	--	--	--
MSD, in RPD	--	--	--	--	11	18	--	--	--	--	9	--	--	--

Table 7. Concentrations of polyaromatic hydrocarbons, polychlorinated biphenyls, and organochlorine pesticides in sediment-grab samples collected from the lower Neponset River, Massachusetts.—Continued

[BHC, 1,2,3,4,5,6-hexachlorocyclohexane; DDD, dichlorodiphenyldichloroethane; DDE, dichlorodiphenyldichloroethylene; DDT, dichlorodiphenyltrichlorethane; MS, matrix spike; MSD, matrix-spike duplicate; PR, Percent Recovery; RPD, relative percent difference; USGS, U.S. Geological Survey; ppb, parts per billion; <, actual value is less than value shown; --, no data]

USGS number	Organochlorine pesticides—*Continued*										Total solids (percent)	Surrogate 1 (PR)	Surrogate 2 (PR)
	Endrin (ppb)	Endrin aldehyde (ppb)	Endrin ketone (ppb)	gamma Chlordane (ppb)	gamma-BHC (ppb)	Heptachlor (ppb)	Heptachlor epoxide (ppb)	Methoxy-chlor (ppb)	Chlordane (technical) (ppb)	Toxaphene (ppb)			
BGY-100	<8.5	<8.5	<8.5	<8.5	<8.5	<8.5	<8.5	<8.5	<170	<170	78	71	104
BGY-101	<8.0	<8.0	<8.0	<8.0	<8.0	<8.0	<8.0	<8.0	<160	<160	80	85	89
BGY-102	<8.0	<8.0	<8.0	<8.0	<8.0	<8.0	<8.0	<8.0	<160	<160	80	80	108
BGY-103	<8.0	<8.0	<8.0	<8.0	<8.0	<8.0	<8.0	<8.0	<160	<160	79	80	108
BGY-104	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<100	<100	57	91	101
BGY-105	<19	<19	<19	<19	<19	<19	<19	<19	<380	<380	33	102	121
BGY-106	<18	<18	<18	<18	<18	<18	<18	<18	<350	<350	41	145	111
BGY-107	<8.5	<8.5	<8.5	<8.5	<8.5	<8.5	<8.5	<8.5	<170	<170	60	95	97
BGY-112	<16	<16	<16	<16	<16	<16	<16	<16	<330	<330	41	88	115
BGY-112-D	<16	<16	<16	<16	<16	<16	<16	<16	<330	<330	44	88	105
M2Y-003	<16	<16	<16	<16	<16	<16	<16	<16	<330	<330	79	87	93
BGY-115	<8.5	<8.5	<8.5	<8.5	<8.5	<8.5	<8.5	<8.5	<170	<170	78	87	82
M2Y-004	<8	<8	<8	<8	<8	<8	<8	<8	<160	<160	87	81	90
BGY-116	<8	<8	<8	<8	<8	<8	<8	<8	<160	<160	88	87	90
BGY-117	<8	<8	<8	<8	<8	<8	<8	<8	<160	<160	74	92	96
BGY-118	<8	<8	<8	<8	<8	<8	<8	<8	<160	<160	80	93	86
BGY-118-D	<8	<8	<8	<8	<8	<8	<8	<8	<160	<160	74	88	101
BGY-119	<8	<8	<8	<8	<8	<8	<8	<8	<160	<160	83	92	90
BGY-121	<8	<8	<8	<8	<8	<8	<8	<8	<160	<160	49	89	89
BGY-124	<8	<8	<8	<8	<8	<8	<8	23.0	<160	<160	85	91	98
M2Y-012	<8	<8	<8	<8	<8	<8	<8	<8	<160	<160	34	107	112
BGY-133	<8	<8	<8	<8	<8	<8	<8	57.0	<160	<160	22	91	97
Blank	<10	<10	<10	<10	<10	<10	<10	<10	<200	<200	--	--	--
Blank	--	--	--	--	--	--	--	--	--	--	--	--	--
MS, in percent recovery	104	--	--	--	95	118	--	--	--	--	--	--	--
MSD, in RPD	9	--	--	--	13	8	--	--	--	--	--	--	--

Table 8. Concentrations of polyaromatic hydrocarbons, polychlorinated biphenyls, and organochlorine pesticides in sediment-core samples collected from the lower Neponset River, Massachusetts.

[BHC, 1,2,3,4,5,6-hexachlorocyclohexane; DDD, dichlorodiphenyldichloroethane; DDE, dichlorodiphenyldichloroethylene; DDT, dichlorodiphenyltrichlorethane; MS, matrix spike; MSD, matrix-spike duplicate; PR, percent recovery; RPD, relative percent difference; USGS, U.S. Geological Survey; ppb, parts per billion; ppm, parts per million; <, actual value is less than value shown; *, both quality-assurance samples less than detection limit; --, no data]

USGS number	Extractable polyaromatic hydrocarbons											
	Acenaphthene (ppm)	Acenaphthylene (ppm)	Anthracene (ppm)	Benzo(*a*)-anthracene (ppm)	Benzo(*a*)-pyrene (ppm)	Benzo(*b*)-fluoranthene (ppm)	Benzo(*g,h,i*)-perylene (ppm)	Benzo(*k*)-fluoranthene (ppm)	Chrysene (ppm)	Dibenzo(*a,h*)-anthracene (ppm)	Fluoranthene (ppm)	Fluorene (ppm)
BGY-108	1.9	<0.5	0.7	0.9	1.1	3.3	<0.5	<0.5	1.3	<0.5	1.4	<0.5
BGY-109	1.2	<.5	.7	1.4	1.4	3.5	5	<.5	1.3	<.5	1.5	<.5
BGY-110	1.2	<.5	.8	1.6	1.3	2.9	<.5	<.5	<.5	<.5	2.6	<.5
BGY-111	2.1	<.5	.6	.7	<.5	2.1	<.5	<.5	<.5	<.5	.9	.8
BGY-113	7.9	<.5	1.4	2.8	2.6	2.4	<.5	<.5	<.5	<.5	3.3	<.5
BGY-113-D	3	.5	<.5	2	.9	1.3	<.5	<.5	<.5	<.5	3.3	<.5
M2Y-001	4.3	.6	1.3	1.5	1.6	3.4	<.5	1.8	<.5	<.5	1.8	<.5
BGY-114	4.5	<.5	.8	.9	<.5	2.6	<.5	<.5	<.5	<.5	1.6	<.5
M2Y-002	4.6	.6	1.5	<.5	<.5	1.5	<.5	3.3	<.5	<.5	3.2	.9
M2Y-005	.7	<.5	.8	1.8	2	2.1	1.2	1.8	1.5	<.5	2.7	.7
BGY-120	.5	<.5	<.5	1.8	1.3	.9	.9	1.4	1.1	<.5	2.1	<.5
BGY-120-D	.8	.6	<.5	1.2	1.2	2.2	1.1	<.5	1	<.5	1.9	<.5
M2Y-006	.6	<.5	.7	1.3	1.8	1.2	2.6	1.8	1.6	<.5	3.4	<.5
M2Y-007	.8	<.5	.6	.9	1.5	.8	<.5	1.6	1	<.5	1.8	.6
BGY-122	<.5	<.5	<.5	.7	2.7	1.2	2.1	1.4	1.5	<.5	1.4	<.5
BGY-123	<.5	<.5	<.5	1.7	1.2	1.6	1.2	1.3	.8	<.5	1.4	<.5
BGY-125	.6	<.5	.7	1.8	2.1	1.3	1.4	1.4	1.9	<.5	3.1	<.5
M2Y-008	<.5	<.5	<.5	1.1	1.2	1.3	.8	1.3	.9	<.5	2	<.5
BGY-126	<.5	.5	<.5	1.6	1.5	1.7	1.3	1.5	2.1	<.5	2.6	.5
BGY-127	.8	<.5	<.5	1.2	1.8	3	1.3	.8	1.2	<.5	2.1	<.5
BGY-128	<.5	.7	<.5	1.5	1	2.5	.9	<.5	.7	<.5	1.5	.9
BGY-128-D	.9	.6	1.2	3.2	2.9	1.5	1.8	1.8	2.7	<.5	4.5	.9
BGY-129	<.5	1.1	<.5	.9	1.1	3.3	1.3	<.5	.9	<.5	1.6	.7
M2Y-009	<.5	<.5	<.5	.7	3.5	<.5	<.5	2.5	.6	<.5	1.1	<.5
M2Y-010	<.5	<.5	<.5	.6	3.1	1.9	<.5	<.5	<.5	<.5	.8	<.5

Table 8. Concentrations of polyaromatic hydrocarbons, polychlorinated biphenyls, and organochlorine pesticides in sediment-core samples collected from the lower Neponset River, Massachusetts.—Continued

[BHC, 1,2,3,4,5,6-hexachlorocyclohexane; DDD, dichlorodiphenyldichloroethane; DDE, dichlorodiphenyldichloroethylene; DDT, dichlorodiphenyltrichlorethane; MS, matrix spike; MSD, matrix-spike duplicate; PR, percent recovery; RPD, relative percent difference; USGS, U.S. Geological Survey; ppb, parts per billion; ppm, parts per million; <, actual value is less than value shown; *, both quality-assurance samples less than detection limit; --, no data]

USGS number	Extractable polyaromatic hydrocarbons											
	Acenaphthene (ppm)	Acenaphthylene (ppm)	Anthracene (ppm)	Benzo(*a*)-anthracene (ppm)	Benzo(*a*)-pyrene (ppm)	Benzo(*b*)-fluoranthene (ppm)	Benzo(*g,h,i*)-perylene (ppm)	Benzo(*k*)-fluoranthene (ppm)	Chrysene (ppm)	Dibenzo(*a,h*)-anthracene (ppm)	Fluoranthene (ppm)	Fluorene (ppm)
M2Y-011	<0.5	<0.5	<0.5	1	3.1	<0.5	<0.5	<0.5	1.1	<0.5	1.9	<0.5
BGY-130	.9	<.5	1.5	6	5	7.2	<.5	2.7	<.5	<.5	8.4	.7
BGY-131	<.5	<.5	<.5	1.1	1.2	<.5	<.5	3.2	<.5	<.5	1.9	<.5
BGY-132	<.5	.6	<.5	<.5	<.5	6.6	<.5	<.5	<.5	<.5	4.9	1.1
BGY-134	<.5	<.5	<.5	.9	.9	3.2	<.5	<.5	<.5	<.5	1.2	<.5
BGY-135	<.5	<.5	<.5	4.7	<.5	<.5	<.5	.8	<.5	<.5	4.7	1.4
BGY-136	<.5	<.5	<.5	4.8	<.5	4.3	<.5	3	5.3	<.5	4.8	.7
BGY-136-D	<.5	<.5	<.5	<.5	<.5	1	<.5	<.5	<.5	<.5	1.2	<.5
BGY-137	.8	.6	<.5	3.1	2.7	5.2	<.5	4.8	<.5	<.5	4	1.2
BGY-138	3.4	1.3	<.5	<.5	2.6	<.5	<.5	15.5	<.5	<.5	3.7	2
Blank	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5
Blank	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5
Blank	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5
MS, in percent recovery	90	77	68	26	13	60	93	48	24	132	4	5
MS, in percent recovery	--	--	--	--	--	--	--	--	--	--	--	--
MSD, in RPD	7	13	10	140	82	1	3	18	13	3	10	104
MSD, in RPD	--	--	--	--	--	--	--	--	--	--	--	--
MSD, in RPD	--	--	--	--	--	--	--	--	--	--	--	--
LD, in RPD	--	--	--	--	--	--	--	--	--	--	--	--

Table 8. Concentrations of polyaromatic hydrocarbons, polychlorinated biphenyls, and organochlorine pesticides in sediment-core samples collected from the lower Neponset River, Massachusetts.—Continued

[BHC, 1,2,3,4,5,6-hexachlorocyclohexane; DDD, dichlorodiphenyldichloroethane; DDE, dichlorodiphenyldichloroethylene; DDT, dichlorodiphenyltrichlorethane; MS, matrix spike; MSD, matrix-spike duplicate; PR, percent recovery; RPD, relative percent difference; USGS, U.S. Geological Survey; ppb, parts per billion; ppm, parts per million; <, actual value is less than value shown; *, both quality-assurance samples less than detection limit; --, no data]

USGS number	Extractable polyaromatic hydrocarbons—*Continued*										
	Indeno(1,2,3-cd) pyrene (ppm)	Naphthalene (ppm)	Phenan-threne (ppm)	Pyrene (ppm)	2-Methylnaph-thalene (ppm)	C9-C18 Aliphatic hydrocarbons (ppm)	C19-C36 Aliphatic hydrocarbons (ppm)	Unadjusted C11-C22 aromatics (ppm)	C11-C22 Aromatic hydrocarbons (ppm)	Aliphatic surrogate (percent)	Aromatic surrogate (percent)
BGY-108	<0.5	<0.5	1.7	1.9	<0.5	40	150	103	88	116	99
BGY-109	<.5	<.5	2.6	2.6	.5	36	<10	121	98	107	107
BGY-110	<.5	<.5	3	3.2	<.5	32	203	133	115	96	120
BGY-111	<.5	<.5	1.6	1.8	.6	31	138	91	80	<.5	<.5
BGY-113	<.5	<.5	3.5	5.4	.5	79	274	248	217	130	102
BGY-113-D	<.5	<.5	2.9	4	<.5	48	191	169	147	108	106
M2Y-001	<.5	<.5	5.4	3.4	<.5	77	236	190	163	123	96
BGY-114	<.5	<.5	1.5	1.6	<.5	44	158	115	100	92	101
M2Y-002	<.5	<.5	4.7	4.5	<.5	77	282	220	194	127	103
M2Y-005	4.4	.5	2.4	2.4	1	<10	61	85	59	78	85
BGY-120	3.2	<.5	1.3	1.8	<.5	<10	67	53	35	80	89
BGY-120-D	3.1	.6	1.2	2.3	<.5	<10	65	83	65	82	106
M2Y-006	2.2	<.5	3	3.1	<.5	<10	51	57	30	82	83
M2Y-007	<.5	.7	1.7	1.8	1.2	<10	<10	67	42	58	83
BGY-122	<.5	<.5	.8	1.5	1.1	<10	38	51	30	71	82
BGY-123	4.4	<.5	1.3	1.8	<.5	<10	72	57	39	74	75
BGY-125	4.4	.6	2	2.7	1	16	157	115	89	110	101
M2Y-008	2.9	<.5	1.3	1.8	<.5	<10	117	72	56	68	102
BGY-126	4	<.5	2.1	2.8	.6	29	248	142	119	76	93
BGY-127	4.6	.7	2.4	2	.6	<10	92	103	80	80	102
BGY-128	3.6	.6	1.2	1.4	.6	<10	61	75	58	74	98
BGY-128-D	1.4	.6	4.5	3.4	.7	23	373	198	166	85	96
BGY-129	3.9	.9	1.7	1.5	<.5	<10	79	112	92	74	105
M2Y-009	<.5	<.5	1.1	1.4	<.5	10	54	43	31	99	94
M2Y-010	<.5	<.5	.8	1	<.5	11	36	33	23	104	86

Table 8. Concentrations of polyaromatic hydrocarbons, polychlorinated biphenyls, and organochlorine pesticides in sediment-core samples collected from the lower Neponset River, Massachusetts.—Continued

[BHC, 1,2,3,4,5,6-hexachlorocyclohexane; DDD, dichlorodiphenyldichloroethane; DDE, dichlorodiphenyldichloroethylene; DDT, dichlorodiphenyltrichlorethane; MS, matrix spike; MSD, matrix-spike duplicate; PR, percent recovery; RPD, relative percent difference; USGS, U.S. Geological Survey; ppb, parts per billion; ppm, parts per million; <, actual value is less than value shown; *, both quality-assurance samples less than detection limit; --, no data]

USGS number	Extractable polyaromatic hydrocarbons—*Continued*										
	Indeno(1,2,3-cd) pyrene (ppm)	Naphthalene (ppm)	Phenan-threne (ppm)	Pyrene (ppm)	2-Methylnaph-thalene (ppm)	C9-C18 Aliphatic hydrocarbons (ppm)	C19-C36 Aliphatic hydrocarbons (ppm)	Unadjusted C11-C22 aromatics (ppm)	C11-C22 Aromatic hydrocarbons (ppm)	Aliphatic surrogate (percent)	Aromatic surrogate (percent)
M2Y-011	<0.5	<0.5	2	2.5	<0.5	17	144	59	46	103	100
BGY-130	<.5	<.5	3.5	7.5	<.5	31	383	316	271	131	116
BGY-131	<.5	<.5	1.3	1.6	<.5	14	122	85	73	135	96
BGY-132	<.5	<.5	4.2	5.2	<.5	86	600	291	262	112	108
BGY-134	<.5	<.5	.7	1.1	<.5	<10	106	68	59	112	96
BGY-135	<.5	<.5	6.4	5.4	.9	114	761	387	362	88	104
BGY-136	<.5	<.5	3.2	4.9	<.5	46	512	318	286	86	107
BGY-136-D	<.5	<.5	1.8	1.3	<.5	22	253	162	155	89	108
BGY-137	<.5	<.5	3.8	3.6	<.5	74	495	259	228	89	107
BGY-138	<.5	<.5	5.1	5.5	1.2	69	771	283	242	79	117
Blank	<.5	<.5	<.5	<.5	<.5	<10	<10	<10	<10	89	97
Blank	<.5	<.5	<.5	<.5	<.5	<10	<10	<10	<10	89	97
Blank	<.5	<.5	<.5	<.5	<.5	<10	<10	<10	<10	104	93
MS, in percent recovery	55	99	86	48	85	--	--	--	--	--	--
MS, in percent recovery	--	--	--	--	--	--	--	--	--	--	--
MSD, in RPD	11	9	10	61	4						
MSD, in RPD	--	--	--	--	--	--	--	--	--	--	--
MSD, in RPD	--	--	--	--	--	--	--	--	--	--	--
LD, in RPD	--	--	--	--	--	--	--	--	--	--	--

Table 8. Concentrations of polyaromatic hydrocarbons, polychlorinated biphenyls, and organochlorine pesticides in sediment-core samples collected from the lower Neponset River, Massachusetts.—Continued

[BHC, 1,2,3,4,5,6-hexachlorocyclohexane; DDD, dichlorodiphenyldichloroethane; DDE, dichlorodiphenyldichloroethylene; DDT, dichlorodiphenyltrichlorethane; MS, matrix spike; MSD, matrix-spike duplicate; PR, percent recovery; RPD, relative percent difference; USGS, U.S. Geological Survey; ppb, parts per billion; ppm, parts per million; <, actual value is less than value shown; *, both quality-assurance samples less than detection limit; --, no data]

USGS number	Polychlorinated biphenyls									Organochlorine pesticides		
	Aroclor 1016 (ppb)	Aroclor 1221 (ppb)	Aroclor 1232 (ppb)	Aroclor 1242 (ppb)	Aroclor 1248 (ppb)	Aroclor 1254 (ppb)	Aroclor 1260 (ppb)	Aroclor 1262 (ppb)	Aroclor 1268 (ppb)	4,4′-DDD (ppb)	4,4′-DDE (ppb)	4,4′-DDT (ppb)
BGY-108	<200	<200	<200	89,000	<200	7,400	2,000	<200	<200	<10	<10	<10
BGY-109	<200	<200	<200	118,000	<200	8,600	2,200	<200	<200	69	<10	51
BGY-110	<200	<200	<200	103,000	<200	7,500	2,000	<200	<200	46	<10	24
BGY-111	<200	<200	<200	140,000	<200	5,900	3,800	<200	<200	31	<130	36
BGY-113	<200	<200	<200	120,000	<200	17,000	5,100	<200	<200	67	<180	51
BGY-113-D	<200	<200	<200	140,000	<200	17,000	5,800	<200	<200	66	<200	44
M2Y-001	<200	<200	<200	140,000	<200	10,000	3,000	<200	<200	45	<120	55
BGY-114	<200	<200	<200	93,000	<200	9,300	3,800	<200	<200	63	<110	28
M2Y-002	<200	<200	<200	208,000	<200	17,000	4,300	<200	<200	120	<240	72
M2Y-005	<200	<200	<200	16,000	<200	3,800	910	<200	<200	<10	<10	<10
BGY-120	<200	<200	<200	1,600	<200	1,400	480	<200	<200	<10	<10	18
BGY-120-D	<200	<200	<200	21,000	<200	8,800	1,500	<200	<200	90	170	<10
M2Y-006	<200	<200	<200	1,700	<200	1,600	460	<200	<200	<10	<10	<10
M2Y-007	<200	<200	<200	3,900	<200	3,200	870	<200	<200	<10	<10	41
BGY-122	<200	<200	<200	43,000	<200	12,000	2,700	<200	<200	<10	<10	<10
BGY-123	<200	<200	<200	17,000	<200	6,100	1,600	<200	<200	<10	<10	<10
BGY-125	<200	<200	<200	12,000	<200	4,700	1,500	<200	<200	<10	<10	22
M2Y-008	<200	<200	<200	30,000	<200	12,000	2,000	<200	<200	<10	<10	<10
BGY-126	<200	<200	<200	13,000	<200	3,300	520	<200	<200	<10	<10	<10
BGY-127	<200	<200	<200	41,000	<200	11,000	2,600	<200	<200	<10	<10	<10
BGY-128	<200	<200	<200	49,000	<200	17,000	2,900	<200	<200	<10	<10	<10
BGY-128-D	<200	<200	<200	49,000	<200	17,000	2,900	<200	<200	<10	<10	<10
BGY-129	<200	<200	<200	33,000	<200	13,000	1,800	<200	<200	<10	<10	<10
M2Y-009	<200	<200	<200	20,000	<200	7,200	920	<200	<200	77	135	<10
M2Y-010	<200	<200	<200	1,800	<200	1,400	400	<200	<200	<10	<10	<10

Table 8. Concentrations of polyaromatic hydrocarbons, polychlorinated biphenyls, and organochlorine pesticides in sediment-core samples collected from the lower Neponset River, Massachusetts.—Continued

[BHC, 1,2,3,4,5,6-hexachlorocyclohexane; DDD, dichlorodiphenyldichloroethane; DDE, dichlorodiphenyldichloroethylene; DDT, dichlorodiphenyltrichlorethane; MS, matrix spike; MSD, matrix-spike duplicate; PR, percent recovery; RPD, relative percent difference; USGS, U.S. Geological Survey; ppb, parts per billion; ppm, parts per million; <, actual value is less than value shown; *, both quality-assurance samples less than detection limit; --, no data]

USGS number	Polychlorinated biphenyls									Organochlorine pesticides		
	Aroclor 1016 (ppb)	Aroclor 1221 (ppb)	Aroclor 1232 (ppb)	Aroclor 1242 (ppb)	Aroclor 1248 (ppb)	Aroclor 1254 (ppb)	Aroclor 1260 (ppb)	Aroclor 1262 (ppb)	Aroclor 1268 (ppb)	4,4′-DDD (ppb)	4,4′-DDE (ppb)	4,4′-DDT (ppb)
M2Y-011	<200	<200	<200	14,000	<200	5,800	910	<200	<200	58	130	<10
BGY-130	<200	<200	<200	710	<200	430	<200	<200	<200	10	<17	24
BGY-131	<200	<200	<200	7,500	<200	340	<200	<200	<200	22	<25	51
BGY-132	<200	<200	<200	28,000	<200	6,500	1,400	<200	<200	24	<160	33
BGY-134	<200	<200	<200	1,200	<200	260	<200	<200	<200	<10	<10	<10
BGY-135	<200	<200	<200	55,000	<200	11,000	2,400	<200	<200	62	67	<260
BGY-136	<200	<200	<200	870	<200	300	<200	<200	<200	12	<12	21
BGY-136-D	<200	<200	<200	880	<200	390	<200	<200	<200	9	<13	37
BGY-137	<200	<200	<200	65,000	<200	11,000	2,300	<200	<200	29	<260	33
BGY-138	<200	<200	<200	55,000	<200	8,600	1,800	<200	<200	39	<230	34
Blank	<200	<200	<200	<200	<200	<200	<200	<200	<200	<10	<10	<10
Blank	<200	<200	<200	<200	<200	<200	<200	<200	<200	<10	<10	<10
Blank	<200	<200	<200	<200	<200	<200	<200	<200	<200	<10	<10	<10
MS, in percent recovery	--	--	--	--	--	--	--	--	--	--	--	87
MS, in percent recovery	--	--	--	--	--	--	--	--	--	--	--	2
MSD, in RPD	--	--	--	--	--	--	--	--	--	--	--	76
MSD, in RPD	--	--	--	--	--	--	--	--	--	--	--	29
MSD, in RPD	*	*	*	7	*	6	11	*	*	8	*	23
LD, in RPD	*	*	*	6	*	0	5	*	*	*	*	*

Table 8. Concentrations of polyaromatic hydrocarbons, polychlorinated biphenyls, and organochlorine pesticides in sediment-core samples collected from the lower Neponset River, Massachusetts.—Continued

[BHC, 1,2,3,4,5,6-hexachlorocyclohexane; DDD, dichlorodiphenyldichloroethane; DDE, dichlorodiphenyldichloroethylene; DDT, dichlorodiphenyltrichlorethane; MS, matrix spike; MSD, matrix-spike duplicate; PR, percent recovery; RPD, relative percent difference; USGS, U.S. Geological Survey; ppb, parts per billion; ppm, parts per million; <, actual value is less than value shown; *, both quality-assurance samples less than detection limit; --, no data]

USGS number	Organochlorine pesticides—*Continued*										
	Aldrin (ppb)	Alpha-Chlordane (ppb)	alpha-BHC (ppb)	beta-BHC (ppb)	delta-BHC (ppb)	Dieldrin (ppb)	Endosulfan I (ppb)	Endosulfan II (ppb)	Endosulfan sulfate (ppb)	Endrin (ppb)	Endrin aldehyde (ppb)
BGY-108	<10	15	<10	<10	<10	<10	<10	<10	<10	18	<10
BGY-109	<10	11	<10	<10	<10	<10	<10	<10	<10	<10	<10
BGY-110	<10	16	<10	<10	<10	<10	<10	<10	<10	<10	<10
BGY-111	<10	18	<10	<10	<10	<10	<10	<10	<10	11	<10
BGY-113	<10	19	<10	<10	<10	<10	<10	<10	<10	<10	<10
BGY-113-D	<10	13	<10	<10	<10	<10	<10	<10	<10	<10	<10
M2Y-001	<10	11	<10	<10	<10	<10	<10	<10	<10	230	<10
BGY-114	<10	14	<10	<10	<10	<10	<10	<10	<10	<10	<10
M2Y-002	<10	25	<10	<10	<10	<10	<10	<10	<10	<10	<10
M2Y-005	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
BGY-120	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
BGY-120-D	<10	52	<10	<10	<10	<10	<10	<10	<10	<10	<10
M2Y-006	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
M2Y-007	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
BGY-122	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
BGY-123	<10	8.9	<10	<10	<10	<10	<10	<10	<10	<10	<10
BGY-125	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
M2Y-008	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
BGY-126	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
BGY-127	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
BGY-128	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
BGY-128-D	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
BGY-129	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
M2Y-009	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
M2Y-010	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10

Table 8. Concentrations of polyaromatic hydrocarbons, polychlorinated biphenyls, and organochlorine pesticides in sediment-core samples collected from the lower Neponset River, Massachusetts.—Continued

[BHC, 1,2,3,4,5,6-hexachlorocyclohexane; DDD, dichlorodiphenyldichloroethane; DDE, dichlorodiphenyldichloroethylene; DDT, dichlorodiphenyltrichlorethane; MS, matrix spike; MSD, matrix-spike duplicate; PR, percent recovery; RPD, relative percent difference; USGS, U.S. Geological Survey; ppb, parts per billion; ppm, parts per million; <, actual value is less than value shown; *, both quality-assurance samples less than detection limit; --, no data]

USGS number	Organochlorine pesticides—*Continued*										
	Aldrin (ppb)	Alpha-Chlordane (ppb)	alpha-BHC (ppb)	beta-BHC (ppb)	delta-BHC (ppb)	Dieldrin (ppb)	Endosulfan I (ppb)	Endosulfan II (ppb)	Endosulfan sulfate (ppb)	Endrin (ppb)	Endrin aldehyde (ppb)
M2Y-011	<10	28	<10	<10	<10	<10	<10	<10	<10	<10	<10
BGY-130	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
BGY-131	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
BGY-132	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
BGY-134	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
BGY-135	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
BGY-136	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
BGY-136-D	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
BGY-137	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
BGY-138	<10	18	<10	<10	<10	<10	<10	<10	<10	29	<10
Blank	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Blank	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Blank	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
MS, in percent recovery	76	--	--	--	--	84	--	--	--	85	--
MS, in percent recovery	3.0	--	--	--	--	3.0	--	--	--	9.0	--
MSD, in RPD	110	--	--	--	--	91	--	--	--	81	--
MSD, in RPD	20	--	--	--	--	11	--	--	--	21	--
MSD, in RPD	*	27	*	*	*	*	*	*	*	*	*
LD, in RPD	*	*	*	*	*	*	*	*	*	*	*

Table 8. Concentrations of polyaromatic hydrocarbons, polychlorinated biphenyls, and organochlorine pesticides in sediment-core samples collected from the lower Neponset River, Massachusetts.—Continued

[BHC, 1,2,3,4,5,6-hexachlorocyclohexane; DDD, dichlorodiphenyldichloroethane; DDE, dichlorodiphenyldichloroethylene; DDT, dichlorodiphenyltrichlorethane; MS, matrix spike; MSD, matrix-spike duplicate; PR, percent recovery; RPD, relative percent difference; USGS, U.S. Geological Survey; ppb, parts per billion; ppm, parts per million; <, actual value is less than value shown; *, both quality-assurance samples less than detection limit; --, no data]

USGS number	Organochlorine pesticides—*Continued*								Total solids (percent)	2,4,5,6-Tetrachloro-*m*-xylene (PR)	Decachloro-biphenyl (PR)
	Endrin ketone (ppb)	gamma-Chlordane (ppb)	gamma-BHC (ppb)	Heptachlor (ppb)	Heptachlor epoxide (ppb)	Methoxy-chlor (ppb)	Chlordane (technical) (ppb)	Toxaphene (ppb)			
BGY-108	<10	<10	<10	<10	<10	<10	<200	<200	50	116	112
BGY-109	<10	<10	<10	<10	<10	<10	<200	<200	50	98	101
BGY-110	<10	<10	<10	<10	<10	<10	<200	<200	57	82	85
BGY-111	<10	<10	<10	<10	<10	<10	<200	<200	53	86	90
BGY-113	<10	<10	<10	<10	<10	<10	<200	<200	56	84	88
BGY-113-D	<10	<10	<10	<10	<10	<10	<200	<200	64	112	83
M2Y-001	<10	<10	<10	<10	<10	<10	<200	<200	57	98	93
BGY-114	<10	<10	<10	<10	<10	<10	<200	<200	40	98	79
M2Y-002	<10	<10	<10	<10	<10	<10	<200	<200	44	--	98
M2Y-005	<10	<10	<10	<10	<10	<10	<200	<200	54	74	99
BGY-120	<10	<10	<10	<10	<10	<10	<200	<200	64	101	105
BGY-120-D	<10	44	<10	<10	<10	<10	<200	<200	45	111	111
M2Y-006	<10	<10	<10	<10	<10	<10	<200	<200	71	99	103
M2Y-007	<10	<10	<10	<10	<10	<10	<200	<200	39	100	107
BGY-122	<10	<10	<10	<10	<10	<10	<200	<200	42	101	110
BGY-123	<10	<10	<10	<10	<10	<10	<200	<200	50	106	108
BGY-125	<10	<10	<10	<10	<10	<10	<200	<200	58	114	121
M2Y-008	<10	<10	<10	<10	<10	<10	<200	<200	54	96	112
BGY-126	<10	<10	<10	<10	<10	<10	<200	<200	52	82	78
BGY-127	<10	<10	<10	<10	<10	<10	<200	<200	54	71	121
BGY-128	<10	<10	<10	<10	<10	<10	<200	<200	53	89	90
BGY-128-D	<10	<10	<10	<10	<10	<10	<200	<200	52	112	97
BGY-129	<10	<10	<10	<10	<10	<10	<200	<200	49	82	102
M2Y-009	<10	47	<10	<10	<10	<10	<200	<200	47	109	99
M2Y-010	<10	<10	<10	<10	<10	<10	<200	<200	66	94	103

Table 8. Concentrations of polyaromatic hydrocarbons, polychlorinated biphenyls, and organochlorine pesticides in sediment-core samples collected from the lower Neponset River, Massachusetts.—Continued

[BHC, 1,2,3,4,5,6-hexachlorocyclohexane; DDD, dichlorodiphenyldichloroethane; DDE, dichlorodiphenyldichloroethylene; DDT, dichlorodiphenyltrichlorethane; MS, matrix spike; MSD, matrix-spike duplicate; PR, percent recovery; RPD, relative percent difference; USGS, U.S. Geological Survey; ppb, parts per billion; ppm, parts per million; <, actual value is less than value shown; *, both quality-assurance samples less than detection limit; --, no data]

USGS number	Organochlorine pesticides—*Continued*								Total solids (percent)	2,4,5,6-Tetrachloro-*m*-xylene (PR)	Decachloro-biphenyl (PR)
	Endrin ketone (ppb)	gamma-Chlordane (ppb)	gamma-BHC (ppb)	Heptachlor (ppb)	Heptachlor epoxide (ppb)	Methoxy-chlor (ppb)	Chlordane (technical) (ppb)	Toxaphene (ppb)			
M2Y-011	<10	27	<10	<10	<10	<10	<200	<200	44	92	86
BGY-130	<10	<10	<10	<10	<10	<10	<200	<200	47	75	81
BGY-131	<10	<10	<10	<10	<10	<10	<200	<200	61	78	86
BGY-132	<10	<10	<10	<10	<10	<10	<200	<200	45	78	92
BGY-134	<10	<10	<10	<10	<10	<10	<200	<200	76	82	97
BGY-135	<10	<10	<10	<10	<10	<10	<200	<200	35	90	79
BGY-136	<10	<10	<10	<10	<10	<10	<200	<200	52	75	79
BGY-136-D	<10	<10	<10	<10	<10	<10	<200	<200	48	73	75
BGY-137	<10	<10	<10	<10	<10	<10	<200	<200	38	96	85
BGY-138	<10	<10	<10	<10	<10	<10	<200	<200	30	92	74
Blank	<10	<10	<10	<10	<10	<10	<200	<200	--	65	86
Blank	<10	<10	<10	<10	<10	<10	<200	<200	--	82	86
Blank	<10	<10	<10	<10	<10	<10	<200	<200	--	93	116
MS, in percent recovery	--	--	78	102	--	--	--	--	--	--	--
MS, in percent recovery	--	--	3	0	--	--	--	--	--	--	--
MSD, in RPD	--	--	67	91	--	--	--	--	--	--	--
MSD, in RPD	--	--	10	15	--	--	--	--	--	--	--
MSD, in RPD	*	*	*	*	*	*	*	*	--	--	--
LD, in RPD	*	*	*	*	*	*	*	*	--	--	--

Table 9. Results from tests using the toxicity characteristic leaching procedure for selected sediment cores collected from the lower Neponset River, Massachusetts.

[LD, laboratory duplicate; LFB, laboratory fortified blank; MS, matrix spike; RPD, relative percent difference; USGS, U.S. Geological Survey; ppb, parts per billion; <, actual value is less than value shown; *, concentrations in both quality-assurance samples less than detection limit]

USGS number	Arsenic (ppb)	Barium (ppb)	Cadmium (ppb)	Chromium (ppb)	Lead (ppb)	Mercury (ppb)	Selenium (ppb)	Silver (ppb)
BGY-110	<100	930	<30	<30	260	<0.2	<100	<30
M2Y-002	<100	740	<30	<30	280	<.2	<100	<30
M2Y-006	<100	780	<30	<30	130	<.2	<100	<30
BGY-122	<100	1,000	<30	<30	190	<.2	<100	<30
BGY-137	<100	1,010	<30	<30	700	<.2	<100	<30
Blank	<100	240	<30	<30	<100	<.2	<100	<30
MS, percent recovery	109	102	107	103	105	92	116	87
LD, in RPD	*	0	*	*	21	*	*	*
LFB, percent recovery	97	104	99	100	100	105	98	96

Table 10. Grain-size distribution of sediment-grab and sediment-core samples collected from the lower Neponset River, Massachusetts.

[Grain-size distribution is given as percent retained. **Pebble:** Less than 6.0 millimeters, greater than or equal to 4.75 millimeters. **Granule**: Less than 4.75 millimeters, greater than or equal to 2.00 millimeters. **Coarse sand**: Less than 2.00 millimeters, greater than or equal to 0.43 millimeters. **Medium sand:** Less than 0.43 millimeters, greater than or equal to 0.08 millimeters. **Fine sand:** Less than 0.08 millimeters, greater than or equal to 0.06 millimeters. **Coarse silt:** Less than 0.06 millimeters, greater than or equal to 0.031 millimeters. **Medium silt:** Less than 0.031 millimeters, greater than or equal to 0.016 millimeters. **Fine silt:** Less than 0.016 millimeters, greater than or equal to 0.008 millimeters. V**ery fine silt:** Less than 0.008 millimeters, greater than or equal to 0.004 millimeters. **Clay:** Less than 0.004 millimeters, greater than or equal to 0.002 millimeters. D, duplicate; USGS, U.S. Geological Survey; <, actual value is less than value shown; mm, millimeter; --, not measured]

USGS number	Sediment-grab samples												
	Sieve analysis							Pipet analysis					
	Pebble	Granule	Coarse sand	Medium sand	Fine sand	Very fine sand	Silt and clay	Coarse silt	Medium silt	Fine silt	Very fine silt	Clay	Clay (<0.002 mm)
BGY-100	0.00	0.78	35.46	43.79	17.83	0.48	1.70	0.371	0.322	0.250	0.077	0.171	0.509
BGY-101	.00	1.32	60.46	30.30	6.03	.15	1.70	--	--	--	--	--	--
BGY-102	.00	.00	48.73	38.54	10.40	.36	2.00	--	--	--	--	--	--
BGY-103	.00	.41	45.84	37.30	10.85	.27	5.30	--	--	--	--	--	--
BGY-104	.00	.59	2.49	3.90	80.13	1.98	10.90	2.956	1.951	1.387	1.187	2.212	1.207
BGY-105	.00	2.47	8.92	8.84	42.61	5.80	31.40	4.382	7.476	4.074	2.836	2.990	9.642
BGY-106	.00	6.94	10.84	11.44	29.57	4.51	36.70	7.823	7.147	5.890	2.850	2.414	10.575
BGY-107	.15	.99	6.02	10.72	66.89	2.72	12.50	3.226	2.775	1.234	.593	.925	3.748
BGY-112	1.58	11.70	22.55	17.90	20.02	2.03	24.20	3.435	6.557	2.732	1.952	2.459	7.065
BGY-112-D	.65	15.43	23.17	16.89	17.31	2.49	24.10	4.154	6.363	2.473	2.671	2.143	6.297
BGY-115	4.34	13.85	46.11	22.83	11.53	.11	1.20	--	--	--	--	--	--
M2Y-003[1]	14.13	31.64	37.60	8.93	5.82	.97	.90	.204	.228	.149	.035	.031	.253
MY2-004	10.00	32.43	45.26	8.28	2.83	.40	.80	--	--	--	--	--	--
BGY-116[1]	14.24	41.71	38.37	2.58	1.64	.64	.80	--	--	--	--	--	--
BGY-117	1.47	2.94	22.63	38.36	29.98	1.62	3.00	.962	.659	.173	.260	.217	.728
BGY-117-D	1.48	2.95	22.75	38.55	30.13	1.62	2.50	.777	.281	.243	.253	.243	.702
BGY-118[1]	4.66	8.80	52.78	23.11	7.85	.69	2.10	--	--	--	--	--	--
BGY-118-D[1]	4.08	7.66	53.10	24.38	8.55	.45	1.80	--	--	--	--	--	--
BGY-119[1]	13.47	27.25	45.58	7.77	3.73	.62	1.60	--	--	--	--	--	--
BGY-121	3.32	13.23	21.68	12.02	16.97	1.83	30.90	3.797	4.353	5.279	2.438	3.277	11.756

Table 10. Grain-size distribution of sediment-grab and sediment-core samples collected from the lower Neponset River, Massachusetts.—Continued

[Grain-size distribution is given as percent retained. **Pebble:** Less than 6.0 millimeters, greater than or equal to 4.75 millimeters. **Granule**: Less than 4.75 millimeters, greater than or equal to 2.00 millimeters. **Coarse sand**: Less than 2.00 millimeters, greater than or equal to 0.43 millimeters. **Medium sand:** Less than 0.43 millimeters, greater than or equal to 0.08 millimeters. **Fine sand:** Less than 0.08 millimeters, greater than or equal to 0.06 millimeters. **Coarse silt:** Less than 0.06 millimeters, greater than or equal to 0.031 millimeters. **Medium silt:** Less than 0.031 millimeters, greater than or equal to 0.016 millimeters. **Fine silt:** Less than 0.016 millimeters, greater than or equal to 0.008 millimeters. **Very fine silt:** Less than 0.008 millimeters, greater than or equal to 0.004 millimeters. **Clay:** Less than 0.004 millimeters, greater than or equal to 0.002 millimeters. D, duplicate; USGS, U.S. Geological Survey; <, actual value is less than value shown; mm, millimeter; --, not measured]

USGS number	Sediment-grab samples												
	Sieve analysis							Pipet analysis					
	Pebble	Granule	Coarse sand	Medium sand	Fine sand	Very fine sand	Silt and clay	Coarse silt	Medium silt	Fine silt	Very fine silt	Clay	Clay (<0.002 mm)
BGY-124[1]	15.46	50.29	23.86	5.78	3.15	.64	.80	.216	.159	.152	.094	.030	.149
M2Y-012	.00	2.71	14.44	14.68	51.19	2.15	14.80	2.894	2.983	2.532	2.261	.663	3.466
BGY-133	.49	4.58	14.50	10.98	37.21	4.69	27.60	3.726	7.787	2.964	2.201	3.557	7.366
BGY-018	0.00	0.14	0.78	1.00	38.91	5.56	53.61	14.21	12.08	6.01	3.52	3.04	14.75
BGY-109	.00	.02	.82	1.10	20.11	4.06	73.89	15.96	16.33	16.20	5.91	5.48	14.01
BGY-110	.69	1.19	9.51	8.18	22.80	2.68	54.95	11.78	13.07	10.01	5.80	1.22	13.07
BGY-111	1.56	.25	1.50	2.08	19.63	4.37	70.61	13.25	16.43	16.37	2.10	6.48	15.98
BGY-113	4.31	5.48	27.62	19.51	14.75	1.66	26.67	4.58	6.15	4.65	2.03	3.94	5.31
BGY-113-D	4.37	3.27	30.03	19.58	16.12	1.71	24.92	5.21	4.29	3.13	1.85	2.44	8.01
M2Y-001	.14	.45	14.76	25.30	23.74	3.24	32.37	6.61	7.37	4.84	1.96	2.44	9.15
BGY-114	.00	.17	1.24	1.30	12.31	3.72	81.26	11.93	18.32	15.31	4.60	7.42	23.67
M2Y-002	1.27	.56	3.21	3.10	30.27	4.39	57.20	12.39	13.05	9.72	2.33	4.26	15.45
M2Y-005	.07	.68	6.65	22.31	41.02	3.82	25.45	5.81	4.49	2.59	1.70	1.80	9.06
BGY-120	3.02	8.73	50.06	8.40	12.77	1.68	15.30	4.59	1.96	2.52	0.54	1.09	4.60
BGY-120-D	0.42	8.07	53.10	9.35	13.17	1.27	14.60	3.46	3.15	1.55	.85	1.13	4.46
M2Y-006	.00	4.58	43.95	2.45	16.78	1.53	12.71	1.65	3.30	3.66	1.11	.90	2.10
M2Y-007	.00	1.08	18.64	19.56	31.81	4.33	24.60	5.78	4.76	2.80	2.31	1.42	7.52
BGY-122	.00	1.14	5.34	7.46	30.70	5.29	50.10	13.61	10.77	7.11	3.35	2.01	13.25
BGY-123	.00	.57	10.05	3.56	28.63	4.82	52.40	12.09	11.06	5.31	3.31	3.31	17.33
BGY-125	.00	8.08	36.63	5.07	15.57	4.02	30.63	9.94	7.55	2.83	1.71	1.45	7.15
M2Y-008	.00	.81	6.59	4.27	36.14	5.87	46.32	12.62	9.41	6.32	1.59	2.83	13.56
BGY-126	.90	1.22	9.55	14.55	35.93	2.63	35.22	7.69	6.48	3.48	1.94	2.27	13.35
BGY-127	7.96	.36	5.54	3.09	29.39	6.67	47.00	12.59	10.97	7.69	3.69	3.50	8.56
BGY-128	.00	.00	10.91	3.00	31.95	5.59	48.55	13.86	11.69	5.61	2.45	2.17	12.77
BGY-128-D	.00	.51	9.96	3.91	29.28	7.79	48.55	15.13	10.81	4.90	2.88	3.41	11.43
BGY-129	.09	.15	4.80	7.59	35.32	4.71	47.34	11.76	10.75	5.05	2.31	3.68	13.78
M2Y-009	.00	.27	4.65	4.61	42.21	5.98	42.30	10.70	8.52	5.87	1.69	3.22	12.30
M2Y-010	.00	.72	6.66	3.43	27.98	4.88	56.30	11.33	12.44	8.49	2.89	4.00	17.16
M2Y-011	.00	.71	4.11	2.94	34.00	6.38	51.86	11.65	12.46	5.63	3.82	3.25	15.04
BGY-130	.91	1.65	6.42	18.60	52.63	1.75	18.00	3.32	3.23	1.64	1.19	1.58	7.04
BGY-018	0.00	0.14	0.78	1.00	38.91	5.56	53.61	14.21	12.08	6.01	3.52	3.04	14.75
BGY-109	.00	.02	.82	1.10	20.11	4.06	73.89	15.96	16.33	16.20	5.91	5.48	14.01
BGY-110	.69	1.19	9.51	8.18	22.80	2.68	54.95	11.78	13.07	10.01	5.80	1.22	13.07
BGY-111	1.56	.25	1.50	2.08	19.63	4.37	70.61	13.25	16.43	16.37	2.10	6.48	15.98
BGY-113	4.31	5.48	27.62	19.51	14.75	1.66	26.67	4.58	6.15	4.65	2.03	3.94	5.31

Table 10. Grain-size distribution of sediment-grab and sediment-core samples collected from the lower Neponset River, Massachusetts.—Continued

[Grain-size distribution is given as percent retained. **Pebble:** Less than 6.0 millimeters, greater than 4.75 millimeters. **Granule**: Less than 4.75 millimeters, greater than 2.00 millimeters. **Coarse sand**: Less than 2.00 millimeters, greater than 0.43 millimeters. **Medium sand:** Less than 0.43 millimeters, greater than 0.08 millimeters. **Fine sand:** Less than 0.08 millimeters, greater than 0.06 millimeters. **Coarse silt:** Less than 0.06 millimeters, greater than 0.031 millimeters. **Medium silt:** Less than 0.031 millimeters, greater than 0.016 millimeters. **Fine silt:** Less than 0.016 millimeters, greater than 0.008 millimeters. **Very fine silt:** Less than 0.008 millimeters, greater than 0.004 millimeters. **Clay:** Less than 0.004 millimeters, greater than 0.002 millimeters. D, duplicate; USGS, U.S. Geological Survey; <, actual value is less than value shown; mm, millimeter; --, not measured]

USGS number	Sediment-core samples												
	Sieve analysis							Pipet analysis					
	Pebble (4.75 mm)	Granule (2.00 mm)	Coarse sand (0.43 mm)	Medium sand (0.25 mm)	Fine sand (0.08 mm)	Very fine sand (0.06 mm)	Slit and clay (<0.06 mm)	Coarse silt (0.031 mm)	Medium silt (0.016 mm)	Fine silt (0.008 mm)	Very fine silt 0.004 (mm)	Clay (0.002 mm)	Clay (<0.002 mm)
BGY-018	0.00	0.14	0.78	1.00	38.91	5.56	53.61	14.21	12.08	6.01	3.52	3.04	14.75
BGY-109	.00	.02	.82	1.10	20.11	4.06	73.89	15.96	16.33	16.20	5.91	5.48	14.01
BGY-110	.69	1.19	9.51	8.18	22.80	2.68	54.95	11.78	13.07	10.01	5.80	1.22	13.07
BGY-111	1.56	.25	1.50	2.08	19.63	4.37	70.61	13.25	16.43	16.37	2.10	6.48	15.98
BGY-113	4.31	5.48	27.62	19.51	14.75	1.66	26.67	4.58	6.15	4.65	2.03	3.94	5.31
BGY-113-D	4.37	3.27	30.03	19.58	16.12	1.71	24.92	5.21	4.29	3.13	1.85	2.44	8.01
M2Y-001	.14	.45	14.76	25.30	23.74	3.24	32.37	6.61	7.37	4.84	1.96	2.44	9.15
BGY-114	.00	.17	1.24	1.30	12.31	3.72	81.26	11.93	18.32	15.31	4.60	7.42	23.67
M2Y-002	1.27	.56	3.21	3.10	30.27	4.39	57.20	12.39	13.05	9.72	2.33	4.26	15.45
M2Y-005	.07	.68	6.65	22.31	41.02	3.82	25.45	5.81	4.49	2.59	1.70	1.80	9.06
BGY-120	3.02	8.73	50.06	8.40	12.77	1.68	15.30	4.59	1.96	2.52	0.54	1.09	4.60
BGY-120-D	0.42	8.07	53.10	9.35	13.17	1.27	14.60	3.46	3.15	1.55	.85	1.13	4.46
M2Y-006	.00	4.58	43.95	2.45	16.78	1.53	12.71	1.65	3.30	3.66	1.11	.90	2.10
M2Y-007	.00	1.08	18.64	19.56	31.81	4.33	24.60	5.78	4.76	2.80	2.31	1.42	7.52
BGY-122	.00	1.14	5.34	7.46	30.70	5.29	50.10	13.61	10.77	7.11	3.35	2.01	13.25
BGY-123	.00	.57	10.05	3.56	28.63	4.82	52.40	12.09	11.06	5.31	3.31	3.31	17.33
BGY-125	.00	8.08	36.63	5.07	15.57	4.02	30.63	9.94	7.55	2.83	1.71	1.45	7.15
M2Y-008	.00	.81	6.59	4.27	36.14	5.87	46.32	12.62	9.41	6.32	1.59	2.83	13.56
BGY-126	.90	1.22	9.55	14.55	35.93	2.63	35.22	7.69	6.48	3.48	1.94	2.27	13.35
BGY-127	7.96	.36	5.54	3.09	29.39	6.67	47.00	12.59	10.97	7.69	3.69	3.50	8.56
BGY-128	.00	.00	10.91	3.00	31.95	5.59	48.55	13.86	11.69	5.61	2.45	2.17	12.77
BGY-128-D	.00	.51	9.96	3.91	29.28	7.79	48.55	15.13	10.81	4.90	2.88	3.41	11.43
BGY-129	.09	.15	4.80	7.59	35.32	4.71	47.34	11.76	10.75	5.05	2.31	3.68	13.78
M2Y-009	.00	.27	4.65	4.61	42.21	5.98	42.30	10.70	8.52	5.87	1.69	3.22	12.30
M2Y-010	.00	.72	6.66	3.43	27.98	4.88	56.30	11.33	12.44	8.49	2.89	4.00	17.16
M2Y-011	.00	.71	4.11	2.94	34.00	6.38	51.86	11.65	12.46	5.63	3.82	3.25	15.04
BGY-130	.91	1.65	6.42	18.60	52.63	1.75	18.00	3.32	3.23	1.64	1.19	1.58	7.04
BGY-131	14.38	17.62	34.15	8.63	19.23	1.80	4.00	1.40	.64	.22	.33	.26	1.15
BGY-132	9.36	1.10	5.39	4.67	16.84	2.99	59.70	9.97	10.11	7.73	4.68	4.07	23.13
BGY-134	5.52	19.18	47.74	12.69	11.18	.55	3.10	.44	.65	.15	.28	.27	1.30
BGY-135	.00	.00	1.54	1.96	14.61	2.64	79.20	8.61	13.72	12.20	4.57	6.64	33.46
BGY-136	.00	2.88	24.61	21.59	23.33	1.37	26.20	3.96	3.46	3.18	1.95	2.06	11.60
BGY-136-D	.00	2.07	28.00	22.67	22.30	1.44	23.50	3.61	2.73	2.55	1.50	2.58	10.53
BGY-137	1.26	5.26	11.04	4.11	12.64	2.96	62.70	10.28	10.28	6.41	5.39	5.40	24.94
BGY-138	36.98	5.52	6.66	2.74	16.93	1.78	29.40	4.60	6.71	5.48	1.27	1.93	9.42

[1]Samples with a substantial mass greater than 6 mm.

Table 11. Total concentrations of polychlorinated biphenyls, by congener and Aroclor, in hexane samples collected in PISCES samplers, lower Neponset River, Massachusetts.

[T&H, Tileston and Hollingsworth; ΣPCBs, sum of the concentrations of polychlorinated biphenyls; ng, nanogram; <, actual value is less than value shown; --, no data]

Station	Sample number	ΣPCBs by congener (ng/hexane sample)	ΣPCBs by Aroclor (ng/hexane sample)	Aroclors 1016 and 1242 (ng/hexane sample)	Aroclor 1254 (ng/hexane sample)	Aroclor 1260 (ng/hexane sample)
Paul's Bridge	17	112	111	17.5	93.3	<3.95
	18	257	259	30.7	223	5.10
Martini Shell	19	142	135	17.0	116	2.26
	20	115	116	16.7	99.7	<4.81
Incinerator Road	23	--	--	--	--	--
	24	29	<22.68	<6.11	<12.4	<4.17
Reservation Park	21	102	77	38.0	38.7	<2.70
	22	108	97	39.6	57.0	<3.60
Fairmont Avenue	15	5,253	3,100	2,880	189	31.1
	16	3,595	2,146	1,990	143	12.9
T&H Dam upstream	13	2,330	1,561	1,420	131	9.87
	14	2,652	1,762	1,600	144	17.6
T&H Dam downstream	11	4,719	2,908	2,570	304	33.6
	12	4,382	2,654	2,340	286	28.2
Kennedy Playground	9	2,373	1,339	1,160	172	6.50
	10	1,706	971	862	107	2.37
Ryan Playground	7	1,304	1,339	1,160	172	6.50
	8	6,177	3,495	3,090	397	7.76
Braided channel	5	3,381	2,330	2,000	324	6.45
	6	4,541	2,960	2,630	324	6.45
Central Avenue	3	2,956	1,989	1,720	266	3.42
	4	3,144	2,100	1,820	274	6.07
Walter Baker Dam	1	1,790	1,227	1,060	167	<1.90
	2	1,874	1,290	1,100	188	2.46

Table 12. Concentrations of polychlorinated biphenyl congeners in hexane samples collected in PISCES samplers, lower Neponset River, Massachusetts.

[Numbers in parentheses are sample numbers. e, estimated; IUPAC, International Union of Pure and Applied Chemistry; <, actual value is less than value shown; T&H, Tileston and Hollingsworth; all values are in nanograms per hexane sample]

IUPAC number	Paul's Bridge		Martini Shell		Incinerator Road	Reservation Park	
	(17)	(18)	(19)	(20)	(24)	(21)	(22)
1	<0.5950	0.681	0.994	0.717	e0.2860	2.14	2.06
2	<.6120	<.6160	<.2900	<.5110	<.2830	<.3920	<.3980
3	<.6120	<.6160	<.2900	<.5110	<.2830	e.5260	e.5090
4+10	3.11	7.47	3.99	3.23	<1.8000	6.47	6.35
5+8	.966	e1.3700	e1.1600	e1.0600	<1.0100	1.66	1.88
6	<.2540	<1.1200	<1.0100	1.16	e3.2400	e1.9400	1.12
7+9	1.31	<1.1200	<1.0100	<.3480	<1.0100	<.4900	<.3640
11	<.2730	<1.2000	<1.0900	<.3740	<1.0900	<.5270	<.3910
12+13	<.2730	<1.2000	<1.0900	<.3740	<1.0900	<.5270	<.3910
14	<.2540	<1.1200	<1.0100	<.3480	<1.0100	<.4900	<.3640
15	e.5900	e1.3100	<1.0900	e.6230	<1.0900	.986	e1.3800
16+32	e2.1100	4.97	2.33	2.35	<1.6100	3.36	3.58
17	1.61	3.73	1.97	1.74	<1.6100	2.78	2.64
18	1.96	4.21	2.19	2.09	<1.6100	3.22	3.25
19	2.42	5.4	2.57	2.26	<1.8500	2.3	2.43
20+21+33	e.8390	e1.9100	e1.1000	e.9120	<1.0900	e.8840	e.9630
22	<.5990	<1.0800	.607	<.7990	<1.0900	.796	1.09
23+34	<.5990	<1.0800	<.3770	<.7990	<1.0900	<.6220	<.3780
24+27	1.87	4.18	1.89	1.87	<1.6100	1.88	1.81
25	.974	1.73	.87	<.7990	<1.0900	.814	e.7040
26	e1.6300	3.58	e1.6200	e1.6500	<1.0900	e1.1400	e1.4300
28	1.68	3.86	2.28	2.31	<1.2100	5.11	5.3
29	<.5990	<1.0800	<.3770	<.7990	<1.0900	<.6220	<.3780
30	<1.0200	<1.8400	<.6410	<1.3600	<1.8500	<1.0600	<.6420
31	e1.5600	e2.5600	e1.6700	e1.7200	<1.0900	e2.9300	e3.1600
35	<.6310	<1.1400	<.3970	<.8410	<1.1500	<.6550	<.3980
36	<.5990	<1.0800	<.3770	<.7990	<1.0900	<.6220	<.3780
37	<.6310	<1.1400	e.5880	<.8410	<1.1500	.855	.815
38	<.6310	<1.1400	<.3970	<.8410	<1.1500	<.6550	<.3980
39	<.5990	<1.0800	<.3770	<.7990	<1.0900	<.6220	<.3780
40	<.7900	<1.5500	<1.5300	<1.7900	<1.0800	<1.0600	<1.5000
41+64+68+71	3.97	10.1	5.81	4.72	1.87	5.4	5.2
42+59	1.29	3.48	2.01	1.81	<.7920	1.75	1.7
43+49	5.53	14.3	7.83	6.25	<.7920	4.28	4.05
44	3.48	9.55	4.6	4.13	1.1	3.83	3.82
45	.554	1.47	<1.0200	<1.1900	<.7210	.985	1.11
46	<.5260	1.14	<1.0200	<1.1900	<.7210	<.7080	<1.0000
47+48+75	3.39	8.44	4.34	3.83	e.7570	2.91	2.74
50	<.4170	<.8200	<.8080	<.9450	<.5710	<.5610	<.7940
51	1.38	2.93	1.3	1.4	<.7210	.739	<1.0000

Table 12. Concentrations of polychlorinated biphenyl congeners in hexane samples collected in PISCES samplers, lower Neponset River, Massachusetts.—Continued

[Numbers in parentheses are sample numbers. e, estimated; IUPAC, International Union of Pure and Applied Chemistry; <, actual value is less than value shown; T&H, Tileston and Hollingsworth; all values are in nanograms per hexane sample]

IUPAC number	Paul's Bridge		Martini Shell		Incinerator Road	Reservation Park	
	(17)	(18)	(19)	(20)	(24)	(21)	(22)
52+73	11.1	29.4	15.1	13.3	2.17	7.91	7.35
53	3.28	7.84	3.92	3.48	<.7210	2.19	2.14
54	<.4170	<.8200	<.8080	<.9450	<.5710	<.5610	<.7940
55	<.4430	<.8720	<.8590	<1.0000	e1.3200	<.5970	<.8440
56+60	.586	1.25	<.8590	<1.0000	<.6080	1.45	1.57
57	<.7900	<1.5500	<1.5300	<1.7900	<1.0800	<1.0600	<1.5000
58	<.7900	<1.5500	<1.5300	<1.7900	<1.0800	<1.0600	<1.5000
61+74	.41	1.26	e1.6300	<.8150	<.4930	1.54	1.91
62+65	<.5260	<1.0300	<1.0200	<1.1900	<.7210	<.7080	<1.0000
63	<.7900	<1.5500	e2.9700	<1.7900	<1.0800	<1.0600	<1.5000
66+80	1.94	4.52	3.2	2.59	.882	2.03	2.26
67	<.7900	<1.5500	<1.5300	<1.7900	<1.0800	<1.0600	e1.5200
69	<.5260	<1.0300	<1.0200	<1.1900	<.7210	<.7080	<1.0000
70+76	2.21	5.34	3.1	2.46	1.14	2.42	2.39
72	<.5780	<1.1400	<1.1200	<1.3100	<.7920	<.7780	<1.1000
77	<.3410	e.7120	<.6610	<.7730	<.4670	<.4590	<.6490
78	<.4430	<.8720	<.8590	<1.0000	e9.8200	<.5970	e6.1600
79	<.4430	<.8720	<.8590	<1.0000	<.6080	<.5970	<.8440
81	<.3410	<.6710	<.6610	<.7730	<.4670	<.4590	<.6490
82	.388	<1.0400	.426	<.6580	<.5760	<.2820	<.6180
83+108	<.3760	<1.4900	e.5040	<.9450	<.8280	<.4050	<.8890
84	1.79	4.56	2.38	2.12	<.7510	e.9200	e1.0100
85+120	.985	2	1.07	e.9690	<.8280	e.6520	<.8890
86+97	1.62	3.95	2.03	1.82	<.8280	e.9480	1.13
87+115+16	2.04	5.25	2.73	2.14	<.8280	1.33	1.56
88+121	<.3730	<1.4800	<.4540	<.9380	<.8220	<.4020	<.8810
89+90+101	5.86	13.3	7.22	6.08	1.26	2.99	3.19
91	1.26	2.66	1.26	1.24	<.8220	e.5650	<.8810
92	1.52	3.61	1.94	1.58	<.7510	.673	<.8060
93+95	6.92	17.8	8.84	7.53	1.07	3.63	3.56
94	1.28	<1.4800	1.22	1.15	1.14	1.06	1.31
96	<.3730	<1.4800	<.4540	<.9380	<.8220	<.4020	<.8810
98+102	<.3730	<1.4800	<.4540	<.9380	<.8220	<.4020	<.8810
99	2.56	5.67	2.98	2.68	<.7020	1.25	1.11
100	<.3730	<1.4800	<.4540	<.9380	<.8220	<.4020	<.8810
103	<.3730	<1.4800	<.4540	<.9380	<.8220	<.4020	<.8810
104	<.2690	<1.0600	<.3270	<.6760	<.5920	<.2890	<.6350
105+127	.697	1.6	.891	e.7100	<.6130	.578	.744
106+118	2.77	5.99	3.23	2.91	e.6610	1.59	1.71
107+109	e.3700	<1.0700	e.3530	<.6790	<.5950	<.2910	<.6380

Table 12. Concentrations of polychlorinated biphenyl congeners in hexane samples collected in PISCES samplers, lower Neponset River, Massachusetts.—Continued

[Numbers in parentheses are sample numbers. e, estimated; IUPAC, International Union of Pure and Applied Chemistry; <, actual value is less than value shown; T&H, Tileston and Hollingsworth; all values are in nanograms per hexane sample]

IUPAC number	Paul's Bridge		Martini Shell		Incinerator Road	Reservation Park	
	(17)	(18)	(19)	(20)	(24)	(21)	(22)
110	6.27	15.4	8.2	6.79	e0.9190	3.31	3.51
111+117	<.3760	<1.4900	<.4580	<.9450	<.8280	<.4050	<.8890
112	<.3760	<1.4900	<.4580	<.9450	<.8280	<.4050	<.8890
113	<.3410	<1.3500	<.4150	<.8570	<.7510	<.3670	<.8060
114	<.2750	<1.0900	<.3350	<.6920	<.6060	<.2960	<.6500
119	e.4790	<1.4900	e.5740	<.9450	<.8280	<.4050	<.8890
122	<.2700	<1.0700	<.3290	<.6790	<.5950	<.2910	<.6380
123	<.2700	<1.0700	<.3290	<.6790	<.5950	<.2910	<.6380
124	<.2610	<1.0400	<.3180	<.6580	<.5760	<.2820	<.6180
125	<.3760	<1.4900	<.4580	<.9450	<.8280	<.4050	<.8890
126	<.2880	<1.1400	<.3510	<.7240	<.6340	<.3100	<.6800
128	.598	1.16	.618	<.6190	<.3600	<.4350	<.3050
129	<.4250	<.7310	<.5390	<.6190	<.3600	<.4350	<.3050
130	<.4250	<.7310	<.5390	<.6190	<.3600	<.4350	<.3050
131+142	<.4700	<.8080	<.5970	<.6850	<.3990	<.4820	<.3380
132+168	.926	2.21	1.13	1.12	<.3290	.49	.517
133	<.4700	<.8080	<.5970	<.6850	<.3990	<.4820	<.3380
134+143	<.4700	<.8080	<.5970	<.6850	<.3990	<.4820	<.3380
135+144	.534	1.31	.724	<.6850	<.3990	<.4820	<.3380
136	.602	1.66	.894	.83	<.4350	<.5260	.417
137	<.4250	<.7310	<.5390	<.6190	<.3600	<.4350	<.3050
138+163+164	3.35	6.75	3.84	2.99	.618	1.58	1.53
139+149	2.78	5.32	3.09	2.6	.55	1.35	1.35
140	<.4700	<.8080	<.5970	<.6850	<.3990	<.4820	<.3380
141	.47	.857	.559	<.6190	<.3600	<.4350	<.3050
145	<.5130	<.8820	<.6510	<.7470	<.4350	<.5260	<.3690
146	.392	.89	.501	<.5650	<.3290	<.3970	<.2790
147	<.4700	<.8080	<.5970	<.6850	<.3990	<.4820	<.3380
148	<.5130	<.8820	<.6510	<.7470	<.4350	<.5260	<.3690
150	<.5130	<.8820	<.6510	<.7470	<.4350	<.5260	<.3690
151	.62	1.26	.748	<.7470	<.4350	<.5260	.372
152	<.5130	<.8820	<.6510	<.7470	<.4350	<.5260	<.3690
153	2.48	4.73	2.46	2.22	.53	1.01	1.05
154	<.5130	<.8820	<.6510	<.7470	<.4350	<.5260	<.3690
155	<.3060	<.5250	<.3880	<.4450	<.2590	<.3130	<.2200
156	<.3630	<.6240	<.4600	<.5290	<.3080	<.3720	<.2610
157	<.3670	<.6310	<.4650	<.5340	<.3110	<.3760	<.2640
158+160	<.4250	<.7310	<.5390	<.6190	<.3600	<.4350	<.3050
159	<.4250	<.7310	<.5390	<.6190	<.3600	<.4350	<.3050
161	<.3880	<.6670	<.4920	<.5650	<.3290	<.3970	<.2790

Table 12. Concentrations of polychlorinated biphenyl congeners in hexane samples collected in PISCES samplers, lower Neponset River, Massachusetts.—Continued

[Numbers in parentheses are sample numbers. e, estimated; IUPAC, International Union of Pure and Applied Chemistry; <, actual value is less than value shown; T&H, Tileston and Hollingsworth; all values are in nanograms per hexane sample]

IUPAC number	Paul's Bridge		Martini Shell		Incinerator Road	Reservation Park	
	(17)	(18)	(19)	(20)	(24)	(21)	(22)
162	<0.4250	<0.7310	<0.5390	<0.6190	<0.3600	<0.4350	<0.3050
165	<.3880	<.6670	<.4920	<.5650	<.3290	<.3970	<.2790
166	<.4250	<.7310	<.5390	<.6190	<.3600	<.4350	<.3050
167	<.3410	<.5860	<.4320	<.4960	<.2890	<.3490	<.2450
169	<.3650	<.6280	<.4630	<.5320	<.3100	<.3740	<.2620
170+190	<.5570	<.5590	<.3150	<.6780	<.5870	<.3800	<.5070
171	<.4850	<.4870	<.2740	<.5900	<.5110	<.3310	<.4410
172+192	<.4850	<.4870	<.2740	<.5900	<.5110	<.3310	<.4410
173	<.4850	<.4870	<.2740	<.5900	<.5110	<.3310	<.4410
174+181	<.4690	<.4710	<.2650	<.5710	<.4940	<.3200	<.4270
175	<.4660	<.4680	<.2630	<.5680	<.4920	<.3180	<.4240
176	<.3530	<.3540	<.1990	<.4290	<.3720	<.2410	<.3210
177	<.4690	<.4710	<.2650	<.5710	<.4940	<.3200	<.4270
178	<.4660	<.4680	<.2630	<.5680	<.4920	<.3180	<.4240
179	<.3530	<.3540	<.1990	<.4290	<.3720	<.2410	<.3210
180	.536	.718	.318	<.5900	<.5110	e.4530	<.4410
182+187	<.4660	<.4680	<.2630	<.5680	<.4920	<.3180	<.4240
183	<.4690	<.4710	<.2650	<.5710	<.4940	<.3200	<.4270
184	<.3530	<.3540	<.1990	<.4290	<.3720	<.2410	<.3210
185	<.4690	<.4710	<.2650	<.5710	<.4940	<.3200	<.4270
186	<.4660	<.4680	<.2630	<.5680	<.4920	<.3180	<.4240
188	<.3530	<.3540	<.1990	<.4290	<.3720	<.2410	<.3210
189	<.4390	<.4410	<.2480	<.5340	<.4620	<.2990	<.3990
191	<.4850	<.4870	<.2740	<.5900	<.5110	<.3310	<.4410
193	<.4850	<.4870	<.2740	<.5900	<.5110	<.3310	<.4410
194	<.7430	<.8450	<.3170	<.9330	<.8210	<.6730	<.7120
195	<.7430	<.8450	<.3170	<.9330	<.8210	<.6730	<.7120
196+203	<.6900	<.7840	<.2950	<.8660	<.7620	<.6250	<.6610
197	<.6900	<.7840	<.2950	<.8660	<.7620	<.6250	<.6610
198	<.6900	<.7840	<.2950	<.8660	<.7620	<.6250	<.6610
199	<.6900	<.7840	<.2950	<.8660	<.7620	<.6250	<.6610
200	<.6900	<.7840	<.2950	<.8660	<.7620	<.6250	<.6610
201	<.6900	<.7840	<.2950	<.8660	<.7620	<.6250	<.6610
202	<.5140	<.5840	<.2200	<.6450	<.5680	<.4660	<.4930
204	<.6900	<.7840	<.2950	<.8660	<.7620	<.6250	<.6610
205	<.5430	<.6170	<.2320	<.6810	<.6000	<.4920	<.5200
206	<.6600	<.6710	<.2110	<.9360	<.4730	<.7670	<.7230
207	<.5440	<.5520	<.1740	<.7710	<.3900	<.6320	<.5960
208	<.5440	<.5520	<.1740	<.7710	<.3900	<.6320	<.5960
209	<.2860	<.3320	<.1950	<.4960	<.3690	<.2840	<.3370

Table 12. Concentrations of polychlorinated biphenyl congeners in hexane samples collected in PISCES samplers, lower Neponset River, Massachusetts.—Continued

[Numbers in parentheses are sample numbers. e, estimated; IUPAC, International Union of Pure and Applied Chemistry; <, actual value is less than value shown; T&H, Tileston and Hollingsworth; all values are in nanograms per hexane sample]

IUPAC number	Fairmont Avenue		T&H Dam upstream		T&H Dam downstream		Kennedy playground	
	(15)	(16)	(13)	(14)	(11)	(12)	(09)	(10)
1	1,010	698	337	359	775	733	310	237
2	2.09	1.5	<.7460	<.7990	e1.1500	e1.1500	<.6130	<.4020
3	89.6	64	16.4	17.9	31.7	29	10.4	8.42
4+10	1,870	1,240	687	792	1,570	1,440	836	575
5+8	495	330	206	233	367	331	138	103
6	73.5	58.1	39.2	52.2	70.4	63.7	29.1	21.8
7+9	12.8	8.94	6.77	8.32	11.8	10.7	6.45	4.33
11	e6.8300	e4.4500	e3.1100	e3.7800	e5.0400	e5.1500	e2.5400	e1.7000
12+13	e13.4000	e9.6600	7.83	e10.4000	e12.6000	12.3	e6.2200	e4.4300
14	<1.2400	<.7940	<.4970	<.4460	<.5240	<.3830	<.8150	<.4190
15	107	74.6	62.1	65.6	109	106	60.5	44.2
16+32	200	134	103	117	185	165	94.1	70.6
17	136	90.5	88.6	100	155	135	80.1	57.4
18	73.1	53.8	46.5	53.2	92.8	80.3	50.2	37.9
19	180	120	92.8	110	191	164	103	73.8
20+21+33	10.7	8.38	6.36	7.39	11	9.75	5.01	4.23
22	19.8	15.1	11	12	20.5	19.1	9.4	7.31
23+34	2.77	1.76	1.78	e2.3400	2.49	2.19	1.23	.913
24+27	93.7	64.2	52.9	60.7	101	88.9	54.1	38.8
25	31.3	19.1	22.1	26.1	33.8	31.3	17.5	12.4
26	49.5	33.4	35.9	40	58.9	53.7	31.4	22.9
28	98	73.1	48.9	54.7	94.4	92.5	58.9	42.7
29	<.6160	<1.5600	<.5630	e.5970	<.3870	<.3790	<.3000	<.2630
30	<1.0500	<2.6500	<.9720	e2.6700	<.6680	<.6540	<.5170	<.4540
31	92.9	66.6	72.4	78.5	123	111	58.9	43.1
35	.927	<1.6400	<.5680	e3.6800	.537	.646	.323	<.2650
36	<.6160	<1.5600	<.5630	<.5280	<.3870	.802	<.3000	<.2630
37	10.1	7.73	6.38	7.03	11.9	11.7	6.71	4.82
38	<.6490	<1.6400	1.19	<.5320	1.48	<.3820	.888	<.2650
39	<.6160	<1.5600	<.5630	<.5280	<.3870	<.3790	e.3030	<.2630
40	7.85	6.29	4.73	5.23	8.02	8.46	5.1	4.22
41+64+68+71	67.6	51	42	44.5	71	73.9	43.2	32.7
42+59	21.5	15.9	12.7	14.6	22.8	24.3	14.6	11.2
43+49	57.5	42	38.5	39.9	63.4	66.1	39.6	29.3
44	34.3	27.7	22.4	23.4	39.5	39.5	25.8	20.6
45	10.7	8.61	6.24	5.87	10.6	10.3	7.14	5.28
46	4.6	3.56	2.92	3.11	4.92	4.57	3.12	2.55
47+48+75	58.1	39	37.5	37.3	57	59.7	33.7	24.2
50	1.21	<.7800	.76	e1.2400	1.04	.834	.551	.41
51	15.9	10.8	9.8	10.4	15.5	15	8.69	6.61

Table 12. Concentrations of polychlorinated biphenyl congeners in hexane samples collected in PISCES samplers, lower Neponset River, Massachusetts.—Continued

[Numbers in parentheses are sample numbers. e, estimated; IUPAC, International Union of Pure and Applied Chemistry; <, actual value is less than value shown; T&H, Tileston and Hollingsworth; all values are in nanograms per hexane sample]

IUPAC number	Fairmont Avenue		T&H Dam upstream		T&H Dam downstream		Kennedy playground	
	(15)	(16)	(13)	(14)	(11)	(12)	(09)	(10)
52+73	67.2	49.9	49.4	49.5	81.4	82	53.3	39.6
53	28.9	21.5	21.2	22	35.4	34.1	21.3	15.7
54	2.48	1.82	1.8	2.12	2.71	2.55	1.54	1.19
55	<.7800	<.8290	<.4140	<.5440	<.3610	<.3990	<.4340	<.2640
56+60	15.7	12.5	9.61	9.35	17.9	19.2	10.2	7.56
57	1.77	2.17	1.51	e1.0100	2.26	e1.8900	1.14	.949
58	<1.3900	<1.4800	<.7430	<.9770	<.6480	<.7160	<.7800	<.4750
61+74	13.2	9.96	8.18	9.33	16.8	17.8	9.47	6.73
62+65	<.9250	<.9840	<.5060	<.6660	<.4410	<.4880	<.5310	<.3230
63	6.69	5.94	5.16	5.33	8.34	8.96	4.59	2.97
66+80	19.4	15.1	12.9	14.2	24.6	26.1	14.7	10.5
67	2.17	2.36	e1.1600	e2.2800	2.94	2.45	1.2	1.12
69	1.11	<.9840	<.5060	<.6660	.77	<.4880	<.5310	<.3230
70+76	17.7	14.7	12.3	e20.0000	25.2	28.1	14.9	11.1
72	2.44	1.44	1.65	1.42	2.02	2.53	1.21	1.08
77	1.85	1.31	1.44	1.31	2.54	2.83	1.43	1.08
78	<.7800	<.8290	<.4140	<.5440	<.3610	<.3990	<.4340	<.2640
79	<.7800	<.8290	<.4140	<.5440	<.3610	<.3990	e.4720	<.2640
81	<.6000	<.6380	<.3180	<.4190	e.2990	<.3070	<.3340	<.2030
82	e1.0500	.657	e.6210	e.7090	1.29	1.18	.767	e.5530
83+108	1.42	.879	.852	1.16	1.29	e1.1300	.784	e.5920
84	3.99	3.16	2.76	3.45	4.64	4.13	3.2	2.51
85+120	2.34	1.41	e1.4900	3.41	e3.9400	e3.5100	e1.9200	e1.1000
86+97	3.4	2.37	2.32	5.99	5.22	5.07	2.94	2.14
87+115+16	3.71	3.57	2.57	3.58	5.98	5.57	4.03	2.2
88+121	<.5770	<.4680	<.5090	<.3220	<.4460	<.3890	<.3940	<.4970
89+90+101	9.78	6.75	6.97	9	16.2	15.5	8.96	5.72
91	4.91	3.2	e2.9100	3.43	5.79	5.74	3.42	2.27
92	4.08	2.73	2.5	3.28	4.26	3.94	2.43	1.66
93+95	12.2	8.86	9.18	11	16.9	15.1	11.3	7.57
94	1.84	1.62	1.63	1.63	1.79	1.57	1.62	1.45
96	.655	.512	<.5090	.433	.666	.532	.42	<.4970
98+102	1.46	.979	1.04	1.19	1.71	1.66	.844	.638
99	5.46	3.6	3.83	e8.1000	9.08	8.4	4.5	2.81
100	.676	<.4680	<.5090	<.3220	<.4460	.459	<.3940	<.4970
103	.806	<.4680	.568	e.3460	.566	.661	<.3940	<.4970
104	<.4160	<.3370	<.3660	<.2310	<.3200	<.2800	<.2830	<.3570
105+127	2.29	1.41	1.55	e9.8100	4.4	4.02	2.13	1.25
106+118	5.97	3.67	4.14	5.56	11.6	10.5	5.43	3.13
107+109	e.7620	.577	e.4380	e.6220	1.22	1.06	.506	<.3430

Table 12. Concentrations of polychlorinated biphenyl congeners in hexane samples collected in PISCES samplers, lower Neponset River, Massachusetts.—Continued

[Numbers in parentheses are sample numbers. e, estimated; IUPAC, International Union of Pure and Applied Chemistry; <, actual value is less than value shown; T&H, Tileston and Hollingsworth; all values are in nanograms per hexane sample]

IUPAC number	Fairmont Avenue		T&H Dam upstream		T&H Dam downstream		Kennedy playground	
	(15)	(16)	(13)	(14)	(11)	(12)	(09)	(10)
110	13.4	8.9	9.01	11.4	19.3	18.5	10.7	7.37
111+117	1.83	<.4720	e.9240	1.09	1.32	1.68	<.3770	.565
112	<.5820	<.4720	<.4870	<.3080	<.4260	<.3720	<.3770	<.4760
113	<.5270	<.4280	<.4470	<.2830	<.3920	<.3420	<.3460	<.4370
114	<.4260	<.3450	<.3580	<.2260	e.3800	e.3150	<.2770	<.3490
119	1.45	.943	e.6410	e1.3200	1.61	e1.3500	1.06	<.4760
122	<.4180	<.3390	<.3510	<.2220	<.3070	<.2680	<.2720	<.3430
123	<.4180	<.3390	<.3510	<.2220	<.3070	e.2830	<.2720	<.3430
124	<.4050	<.3280	<.3400	.405	e.4620	.473	<.2630	<.3320
125	<.5820	<.4720	<.4870	<.3080	<.4260	<.3720	<.3770	<.4760
126	<.4450	<.3610	<.3670	<.2320	<.3210	<.2800	<.2840	<.3590
128	.695	.552	.643	.767	1.62	1.48	.695	e.3410
129	<.6650	<.5100	<.3170	<.3320	<.3480	<.3430	<.2210	<.3000
130	<.6650	<.5100	<.3170	<.3320	.759	.587	<.2210	<.3000
131+142	<.7360	<.5650	<.3660	<.3820	<.4010	<.3950	<.2540	<.3450
132+168	1.2	.821	.893	1.49	1.94	1.69	.866	.718
133	<.7360	<.5650	<.3660	<.3820	<.4010	<.3950	<.2540	<.3450
134+143	<.7360	<.5650	<.3660	<.3820	<.4010	<.3950	<.2540	<.3450
135+144	.937	.631	.604	.993	1.25	1.22	.635	.513
136	1.05	.814	.749	1.11	1.16	.939	.835	.577
137	<.6650	<.5100	<.3170	.355	.627	.56	<.2210	<.3000
138+163+164	5.39	3.59	2.8	4.63	9.38	8.9	4.02	2.11
139+149	4.09	2.54	2.48	3.85	6.6	6.21	3.14	1.79
140	<.7360	<.5650	<.3660	<.3820	<.4010	<.3950	<.2540	<.3450
141	.693	<.5100	.406	.63	.946	.875	.401	<.3000
145	<.8030	<.6160	<.4040	<.4230	<.4440	<.4370	<.2810	<.3820
146	.82	.612	.433	.632	1.34	1.21	.483	.303
147	<.7360	<.5650	<.3660	<.3820	.474	.512	<.2540	<.3450
148	<.8030	<.6160	<.4040	<.4230	<.4440	<.4370	<.2810	<.3820
150	<.8030	<.6160	<.4040	<.4230	<.4440	<.4370	<.2810	<.3820
151	1.29	.967	.787	1.12	1	.971	.708	.533
152	<.8030	<.6160	<.4040	<.4230	<.4440	<.4370	<.2810	<.3820
153	3.38	2.08	2.03	3.24	7.12	6.56	3.17	1.36
154	<.8030	<.6160	<.4040	<.4230	<.4440	<.4370	<.2810	<.3820
155	<.4780	<.3670	<.2410	<.2520	<.2650	<.2610	<.1680	<.2280
156	0.592	<.4360	<.2670	<.2790	0.736	.717	e.2540	<.2520
157	<.5740	<.4410	<.2700	<.2820	<.2960	<.2910	<.1870	<.2550
158+160	<.6650	<.5100	e.3300	.606	1.12	1.11	.526	<.3000
159	<.6650	<.5100	<.3170	<.3320	<.3480	<.3430	<.2210	<.3000
161	<.6070	<.4660	<.2950	<.3090	<.3240	<.3190	<.2050	<.2790

Table 12. Concentrations of polychlorinated biphenyl congeners in hexane samples collected in PISCES samplers, lower Neponset River, Massachusetts.—Continued

[Numbers in parentheses are sample numbers. e, estimated; IUPAC, International Union of Pure and Applied Chemistry; <, actual value is less than value shown; T&H, Tileston and Hollingsworth; all values are in nanograms per hexane sample]

IUPAC number	Fairmont Avenue		T&H Dam upstream		T&H Dam downstream		Kennedy playground	
	(15)	(16)	(13)	(14)	(11)	(12)	(09)	(10)
162	<0.6650	<0.5100	<0.3170	<0.3320	<0.3480	<0.3430	<0.2210	<0.3000
165	<.6070	<.4660	<.2950	<.3090	<.3240	<.3190	<.2050	<.2790
166	<.6650	<.5100	<.3170	<.3320	<.3480	<.3430	<.2210	<.3000
167	<.5330	<.4090	<.2550	<.2670	e.3680	.387	<.1770	<.2410
169	<.5710	<.4380	<.2670	<.2790	<.2930	<.2890	<.1860	<.2520
170+190	1.59	<1.0700	0.605	1.23	1.59	1.28	e.4740	<.2350
171	<.4480	<.9310	<.3010	<.2510	0.332	<.3120	<.2660	<.2070
172+192	<.4480	<.9310	<.3010	<.2510	<.3130	<.3120	<.2660	<.2070
173	<.4480	<.9310	<.3010	<.2510	<.3130	<.3120	<.2660	<.2070
174+181	.626	<.9020	<.2940	.345	.636	.438	<.2600	<.2020
175	<.4310	<.8960	<.2970	<.2480	<.3090	<.3080	<.2620	<.2040
176	<.3260	<.6780	<.2280	<.1900	<.2370	<.2360	<.2010	<.1570
177	.511	<.9020	<.2940	<.2450	.487	.548	<.2600	<.2020
178	<.4310	<.8960	<.2970	<.2480	<.3090	<.3080	<.2620	<.2040
179	<.3260	<.6780	<.2280	.274	<.2370	<.2360	<.2010	<.1570
180	2.2	1.82	.785	.96	2.5	2.14	.916	.334
182+187	1.07	.969	e.4040	.597	1.3	1.15	e.3950	<.2040
183	.589	<.9020	<.2940	.279	.642	.544	<.2600	<.2020
184	<.3260	<.6780	<.2280	<.1900	<.2370	<.2360	<.2010	<.1570
185	<.4340	<.9020	<.2940	<.2450	<.3060	<.3050	<.2600	<.2020
186	<.4310	<.8960	<.2970	<.2480	<.3090	<.3080	<.2620	<.2040
188	<.3260	<.6780	<.2280	<.1900	<.2370	<.2360	<.2010	<.1570
189	<.4050	<.8430	<.2450	<.2040	<.2550	<.2540	<.2160	<.1680
191	<.4480	<.9310	<.3010	<.2510	<.3130	<.3120	<.2660	<.2070
193	<.4480	<.9310	<.3010	<.2510	<.3130	<.3120	<.2660	<.2070
194	e1.2800	e1.1200	<.3950	<.6080	.834	<.8030	<.3380	<.2260
195	<.8220	<.7870	<.3950	<.6080	<.3170	<.8030	<.3380	<.2260
196+203	1.26	1.05	.471	<.5770	.772	<.7620	<.3210	<.2150
197	<.7640	<.7300	<.3740	<.5770	<.3010	<.7620	<.3210	<.2150
198	<.7640	<.7300	<.3740	<.5770	<.3010	<.7620	<.3210	<.2150
199	e1.0100	.889	.466	<.5770	.665	e.7950	<.3210	<.2150
200	<.7640	<.7300	<.3740	<.5770	<.3010	<.7620	<.3210	<.2150
201	<.7640	<.7300	<.3740	<.5770	<.3010	<.7620	<.3210	<.2150
202	<.5690	<.5440	<.2880	<.4430	<.2310	<.5850	<.2470	<.1650
204	<.7640	<.7300	<.3740	<.5770	<.3010	<.7620	<.3210	<.2150
205	<.6010	<.5750	<.2830	<.4370	<.2280	<.5770	<.2430	<.1620
206	<.6470	<.5650	<.3290	<.3960	<.5080	<.4230	<.4210	<.2270
207	<.5330	<.4650	<.2840	<.3420	<.4380	<.3660	<.3630	<.1960
208	<.5330	<.4650	<.2840	<.3420	<.4380	<.3660	<.3630	<.1960
209	<.3080	<.3120	<.2770	<.1920	<.2370	<.3460	<.3040	<.2200

Table 12. Concentrations of polychlorinated biphenyl congeners in hexane samples collected in PISCES samplers, lower Neponset River, Massachusetts.—Continued

[Numbers in parentheses are sample numbers. e, estimated; IUPAC, International Union of Pure and Applied Chemistry; <, actual value is less than value shown; T&H, Tileston and Hollingsworth; all values are in nanograms per hexane sample]

IUPAC number	Ryan playground		Braided channel		Central Avenue		Walter Baker Dam	
	(07)	(08)	(05)	(06)	(03)	(04)	(01)	(02)
1	140	688	261	374	220	230	121	133
2	<.4040	<.8770	<.6670	<.5320	<1.0800	<.6400	e.5960	<.2640
3	4.48	20.8	8.1	11.6	7.07	7.01	4	3.84
4+10	446	2,100	960	1290	756	843	460	485
5+8	69.4	316	137	182	105	112	64.3	64.9
6	16.8	75.6	53.5	67.6	36.6	39.1	23.2	23.7
7+9	2.92	12.6	6.62	8.82	4.98	5.37	3.33	4.67
11	e1.5100	e7.1100	e4.6500	e6.6700	e3.6200	e3.6200	e2.2400	2.13
12+13	e3.6900	18	e12.6000	e16.8000	9.29	9.8	e6.0800	e6.0800
14	<.5530	<.5650	<.4100	<.2410	<.4260	<.3370	<.2530	<.3640
15	38.2	177	109	146	87.7	91.7	55.3	54.9
16+32	57.6	265	147	191	137	146	86.5	90
17	47.7	216	125	160	110	119	67.5	70.6
18	34	155	125	164	112	119	70.1	74.5
19	61.9	282	142	181	117	127	72.3	77.4
20+21+33	3.15	15	14.5	19.4	13	14.2	8.45	8.7
22	6.45	29	25.2	32.9	21.9	22.4	13.4	14
23+34	.756	3.38	2.25	2.82	1.76	2.12	1.1	1.12
24+27	33.9	153	79.5	102	67.7	71.9	41.2	43
25	11.8	53.2	51.7	66.8	40	41.8	24.1	25.3
26	20.9	97.1	88.3	116	72.6	76.3	44.9	46
28	36.1	159	124	162	119	120	73	74.8
29	<.3920	e.5000	<.4020	<.2850	<.2900	<.2760	<.2420	<.1660
30	<.6760	<.6450	<.6940	<.4910	<.5000	<.4770	<.4180	<.2870
31	38.3	183	141	185	117	128	71	74.9
35	<.3950	.902	.545	.8	.681	.846	e.3110	e.5390
36	<.3920	1.2	.941	1.25	.777	.76	<.2420	<.1660
37	4.32	19.2	13.8	18.7	14.5	14.6	9.1	9.18
38	e.4880	2.26	1.41	e1.8100	1.26	e1.6100	e.7860	e.8530
39	<.3920	e.6460	e.5580	e.5100	e.5820	e.3060	e.2610	<.1660
40	3.59	16.6	14.6	20.8	13.6	13.5	8.83	9.23
41+64+68+71	26.4	128	95.7	132	93.9	96	58.1	59.3
42+59	8.88	43.2	34.7	48.7	33.6	34.6	21	21.1
43+49	23.5	115	80.8	114	80.8	83.7	49.8	50.9
44	17.1	82.2	71.3	97.1	66.7	69	41.9	41.4
45	4.22	20.9	15.9	21.9	14.3	15.3	9.02	9.21
46	1.93	9.29	6.57	9.13	6.68	6.97	4.44	4.35
47+48+75	17.2	84.9	53.3	72.2	55.6	56.4	33.6	35.1
50	.291	1.43	.84	1.03	.755	.859	.384	.498
51	5.08	22.9	12.9	17.9	13.5	14	8.09	8.12

Table 12. Concentrations of polychlorinated biphenyl congeners in hexane samples collected in PISCES samplers, lower Neponset River, Massachusetts.—Continued

[Numbers in parentheses are sample numbers. e, estimated; IUPAC, International Union of Pure and Applied Chemistry; <, actual value is less than value shown; T&H, Tileston and Hollingsworth; all values are in nanograms per hexane sample]

IUPAC number	Ryan playground		Braided channel		Central Avenue		Walter Baker Dam	
	(07)	(08)	(05)	(06)	(03)	(04)	(01)	(02)
52+73	32	155	114	157	112	117	67.8	70.6
53	12.6	61.6	36.2	49.9	36.1	37.8	22.3	23.4
54	.92	4.19	2.26	2.8	2.12	2.22	1.19	1.31
55	e.3570	e5.3800	.365	e.3000	e2.8900	e3.0500	e.3460	e1.0200
56+60	5.96	28.3	14	20.6	17.6	17.1	10.8	11.1
57	<.5100	2.89	2.19	3.07	2.12	1.71	1.1	1.2
58	<.5100	e2.1200	<.5590	<.4690	<1.0100	<.9080	<.3400	<.4660
61+74	4.97	23.5	15.3	22.3	18.2	18.2	11	11.5
62+65	<.3470	e.3260	<.3810	<.3190	<.6910	<.6180	<.2320	<.3170
63	2.29	11.9	7.9	11.1	7.65	7.45	4.53	5.04
66+80	7.78	38.8	22	31.7	28.9	27.3	16.4	17
67	<.5100	3.37	2.89	3.87	e2.4500	2.21	1.86	1.78
69	<.3470	0.891	<.3810	.717	<.6910	<.6180	<.2320	<.3170
70+76	7.75	39.5	21.2	30.2	26.5	26.7	16.7	17.4
72	<.3750	3.2	2.08	2.88	1.81	1.86	1.32	1.18
77	.755	3.75	2.32	3.38	2.9	2.57	1.58	1.61
78	e2.8500	e31.0000	e.3890	<.2610	e20.2000	e17.5000	<.1890	<.2590
79	<.2840	e1.5000	<.3110	e.3330	<.5650	e.7410	e.3800	<.2590
81	<.2180	e.1900	<.2390	e.2330	<.4350	<.3890	e.1720	e.2460
82	.467	1.73	1.17	1.67	1.31	1.43	.824	.951
83+108	<.5010	1.98	1.32	1.83	e1.3300	1.44	.868	.875
84	2.01	9.03	6.16	8.32	5.88	6.45	e3.7500	3.92
85+120	e.8450	e4.2400	2.56	e3.6300	2.85	2.72	e1.8700	e1.9300
86+97	1.5	7.01	4.35	5.81	4.47	4.82	3.03	3.32
87+115+16	2.2	9.96	6.11	7.69	6.48	6.77	3.96	4.65
88+121	<.5230	<.5790	<.5160	<.3300	<.3980	<.2440	<.3530	<.4840
89+90+101	4.38	20.3	12.2	16.3	12.4	13.2	7.84	8.86
91	1.84	8.15	5.17	6.92	5.28	5.74	3.21	3.58
92	1.35	5.88	4.06	5.08	3.7	3.74	2.22	2.45
93+95	6.65	29.6	19.9	26.4	18.2	19.6	11.5	12.2
94	1.43	1.9	1.63	1.86	1.61	1.64	1.49	1.58
96	<.5230	1.06	.873	1.01	.676	.848	.45	<.4840
98+102	<.5230	2.39	1.7	2.24	1.69	1.9	1.01	1.06
99	1.97	9.47	6.1	8.13	6.8	6.65	4.18	4.56
100	<.5230	<.5790	<.5160	e.3530	<.3980	<.2440	<.3530	<.4840
103	<.5230	.747	<.5160	.526	<.3980	.521	<.3530	<.4840
104	<.3760	<.4170	<.3710	<.2370	<.2860	<.1760	<.2530	<.3480
105+127	.791	3.9	2.18	2.76	2.57	2.58	1.57	1.88
106+118	2.28	10.3	6.27	8.44	6.95	6.98	4.36	5.07
107+109	<.3610	.946	e.5390	.795	e.6110	.686	e.3360	e.4360

Table 12. Concentrations of polychlorinated biphenyl congeners in hexane samples collected in PISCES samplers, lower Neponset River, Massachusetts.—Continued

[Numbers in parentheses are sample numbers. e, estimated; IUPAC, International Union of Pure and Applied Chemistry; <, actual value is less than value shown; T&H, Tileston and Hollingsworth; all values are in nanograms per hexane sample]

IUPAC number	Ryan playground		Braided channel		Central Avenue		Walter Baker Dam	
	(07)	(08)	(05)	(06)	(03)	(04)	(01)	(02)
110	5.54	26.3	17.6	23.7	17.1	17.4	10.7	11.6
111+117	<.5010	<.5550	<.4930	<.3160	<.3810	<.2340	<.3370	<.4630
112	<.5010	<.5550	<.4930	<.3160	<.3810	<.2340	<.3370	<.4630
113	<.4600	<.5090	<.4530	<.2900	<.3490	<.2150	<.3100	<.4250
114	<.3680	<.4070	<.3620	e.2550	e.3360	e.1850	<.2480	<.3400
119	<.5010	1.58	.875	1.29	.927	.954	.514	.797
122	<.3610	<.3990	<.3550	<.2280	<.2740	<.1680	<.2430	<.3330
123	<.3610	<.3990	<.3550	.8	<.2740	e.1990	<.2430	<.3330
124	<.3490	.454	<.3440	e.2510	e.2860	e.1860	<.2350	<.3220
125	<.5010	<.5550	<.4930	<.3160	<.3810	<.2340	<.3370	<.4630
126	<.3770	<.4180	<.3720	<.2380	<.2870	<.1760	<.2540	<.3490
128	<.3550	.905	.433	.586	.595	e.4680	e.3160	.446
129	<.3550	<.3690	<.2660	<.3090	<.3020	<.2390	<.2300	<.2900
130	<.3550	<.3690	<.2660	<.3090	<.3020	<.2390	<.2300	<.2900
131+142	<.4090	<.4250	<.3060	<.3560	<.3480	<.2760	<.2650	<.3340
132+168	.512	2.07	1.17	1.48	1.17	1.25	.898	.906
133	<.4090	<.4250	<.3060	<.3560	<.3480	<.2760	<.2650	<.3340
134+143	<.4090	.627	<.3060	<.3560	<.3480	<.2760	<.2650	<.3340
135+144	<.4090	1.39	.849	1.03	.718	.905	.578	.577
136	<.4520	1.9	1.03	1.3	1.07	1.08	.671	.667
137	<.3550	<.3690	<.2660	<.3090	<.3020	<.2390	<.2300	<.2900
138+163+164	1.38	5.74	3.25	4.15	3.81	3.64	2.15	2.72
139+149	1.22	5.53	3.06	4.22	3.33	3.38	2.01	2.48
140	<.4090	<.4250	<.3060	<.3560	<.3480	<.2760	<.2650	<.3340
141	<.3550	.754	.426	.591	e.5390	.472	<.2300	<.2900
145	<.4520	<.4700	<.3380	<.3940	<.3840	<.3050	<.2930	<.3700
146	<.3300	.709	.445	.529	.342	.486	e.2690	.311
147	<.4090	<.4250	<.3060	<.3560	<.3480	<.2760	<.2650	<.3340
148	<.4520	<.4700	<.3380	<.3940	<.3840	<.3050	<.2930	<.3700
150	<.4520	<.4700	<.3380	<.3940	<.3840	<.3050	<.2930	<.3700
151	<.4520	1.67	.88	1.17	.9	.92	.698	.654
152	<.4520	<.4700	<.3380	<.3940	<.3840	<.3050	<.2930	<.3700
153	.822	3.96	2.25	2.85	2.36	2.32	1.45	1.8
154	<.4520	<.4700	<.3380	<.3940	<.3840	<.3050	<.2930	<.3700
155	<.2700	<.2810	<.2020	<.2350	<.2300	<.1820	<.1750	<.2210
156	<.2980	<.3100	<.2230	.269	.257	<.2010	.204	<.2440
157	<.3010	<.3130	<.2260	<.2630	<.2560	<.2030	<.1950	<.2470
158+160	<.3550	e.7280	.455	.517	.496	.481	.289	.341
159	<.3550	<.3690	<.2660	<.3090	<.3020	<.2390	<.2300	<.2900
161	<.3300	<.3430	<.2470	<.2880	<.2810	<.2220	<.2140	<.2700

Table 12. Concentrations of polychlorinated biphenyl congeners in hexane samples collected in PISCES samplers, lower Neponset River, Massachusetts.—Continued

[Numbers in parentheses are sample numbers. e, estimated; IUPAC, International Union of Pure and Applied Chemistry; <, actual value is less than value shown; T&H, Tileston and Hollingsworth; all values are in nanograms per hexane sample]

IUPAC number	Ryan playground		Braided channel		Central Avenue		Walter Baker Dam	
	(07)	(08)	(05)	(06)	(03)	(04)	(01)	(02)
162	<0.3550	<0.3690	<0.2660	<0.3090	<0.3020	<0.2390	<0.2300	<0.2900
165	<.3300	<.3430	<.2470	<.2880	<.2810	<.2220	<.2140	<.2700
166	<.3550	<.3690	<.2660	<.3090	<.3020	<.2390	<.2300	<.2900
167	<.2850	<.2970	<.2130	<.2490	<.2430	<.1920	<.1850	<.2330
169	<.2980	<.3110	<.2240	<.2600	<.2540	<.2010	<.1930	<.2440
170+190	<.3500	.48	<.3090	.329	<.3000	.349	<.2680	<.3420
171	<.3080	<.2690	<.2720	<.2800	<.2640	<.1710	<.2360	<.3010
172+192	<.3080	<.2690	<.2720	<.2800	<.2640	<.1710	<.2360	<.3010
173	<.3080	<.2690	<.2720	<.2800	<.2640	<.1710	<.2360	<.3010
174+181	<.3010	<.2630	<.2660	<.2740	e.3230	<.1670	<.2310	<.2940
175	<.3040	<.2650	<.2680	<.2760	<.2610	<.1690	<.2330	<.2970
176	<.2330	<.2030	<.2060	<.2120	<.2000	<.1300	<.1790	<.2280
177	<.3010	<.2630	<.2660	<.2740	<.2580	<.1670	<.2310	<.2940
178	<.3040	<.2650	<.2680	<.2760	<.2610	<.1690	<.2330	<.2970
179	<.2330	<.2030	<.2060	<.2120	<.2000	<.1300	<.1790	<.2280
180	<.3080	.614	.336	.58	.481	.506	e.2450	.347
182+187	<.3040	.41	.289	.354	.312	.37	<.2330	<.2970
183	<.3010	<.2630	<.2660	<.2740	<.2580	<.1670	<.2310	<.2940
184	<.2330	<.2030	<.2060	<.2120	<.2000	<.1300	<.1790	<.2280
185	<.3010	<.2630	<.2660	<.2740	<.2580	<.1670	<.2310	<.2940
186	<.3040	<.2650	<.2680	<.2760	<.2610	<.1690	<.2330	<.2970
188	<.2330	<.2030	<.2060	<.2120	<.2000	<.1300	<.1790	<.2280
189	<.2510	<.2190	<.2210	<.2280	<.2150	<.1390	<.1920	<.2450
191	<.3080	<.2690	<.2720	<.2800	<.2640	<.1710	<.2360	<.3010
193	<.3080	<.2690	<.2720	<.2800	<.2640	<.1710	<.2360	<.3010
194	<.2200	<.2410	<.3450	<.2780	<.4010	<.2090	<.6230	<.3010
195	<.2200	<.2410	<.3450	<.2780	<.4010	<.2090	<.6230	<.3010
196+203	<.2080	<.2290	<.3270	<.2630	<.3800	<.1990	<.5920	<.2850
197	<.2080	<.2290	<.3270	<.2630	<.3800	<.1990	<.5920	<.2850
198	<.2080	<.2290	<.3270	<.2630	<.3800	<.1990	<.5920	<.2850
199	<.2080	<.2290	<.3270	<.2630	<.3800	<.1990	<.5920	<.2850
200	<.2080	<.2290	<.3270	<.2630	<.3800	<.1990	<.5920	<.2850
201	<.2080	<.2290	<.3270	<.2630	<.3800	<.1990	<.5920	<.2850
202	<.1600	<.1760	<.2510	<.2020	<.2920	<.1530	<.4540	<.2190
204	<.2080	<.2290	<.3270	<.2630	<.3800	<.1990	<.5920	<.2850
205	<.1580	<.1730	<.2480	<.1990	<.2880	<.1500	<.4480	<.2160
206	<.4100	<.2810	<.3210	<.2710	<.3920	<.3940	<.2360	<.3050
207	<.3540	<.2430	<.2770	<.2340	<.3390	<.3400	<.2030	<.2630
208	<.3540	<.2430	<.2770	<.2340	<.3390	<.3400	<.2030	<.2630

Table 12. Concentrations of polychlorinated biphenyl congeners in hexane samples collected in PISCES samplers, lower Neponset River, Massachusetts.—Continued

[Numbers in parentheses are sample numbers. e, estimated; IUPAC, International Union of Pure and Applied Chemistry; <, actual value is less than value shown; T&H, Tileston and Hollingsworth; all values are in nanograms per hexane sample]

IUPAC number	Ryan playground		Braided channel		Central Avenue		Walter Baker Dam	
	(07)	(08)	(05)	(06)	(03)	(04)	(01)	(02)
209	<.2510	<.1530	<.2390	<.1560	<.2290	<.1150	<.1770	<.1560

Table 13. Homolog data for polychlorinated biphenyls in hexane samples collected in PISCES samplers, lower Neponset River, Massachusetts.

[T&H, Tileston and Hollingsworth; <, actual value is less than value shown; --, no sample; all values in nanograms per hexane sample]

Station name	Sample number	Total monochloro-biphenyls	Total dichloro-biphenyls	Total trichloro-biphenyls	Total tetrachloro-biphenyls	Total pentachloro-biphenyls
Paul's Bridge	17	<0.612	5.39	10.5	39.2	36.0
	18	.681	7.47	31.7	101	81.9
Martini Shell	19	.994	3.99	14.7	51.2	44.4
	20	.717	4.39	12.6	44.0	36.0
Incinerator Road	23	--	--	--	--	--
	24	<.283	<1.80	<1.85	7.16	3.47
Reservation Park	21	2.14	9.12	21.1	37.4	16.4
	22	2.06	9.35	20.9	36.2	17.8
Fairmont Avenue	15	1,100	2,560	999	460	81.6
	16	763	1,710	687	344	55.8
T&H Dam upstream	13	353	1,010	590	303	48.9
	14	377	1,150	666	299	66.0
T&H Dam downstream	11	806	2,120	1080	517	115
	12	762	1,970	966	529	106
Kennedy Playground	9	320	1,070	572	316	65.1
	10	246	748	417	237	41.3

Table 13. Homolog data for polychlorinated biphenyls in hexane samples collected in PISCES samplers, lower Neponset River, Massachusetts.

[T&H, Tileston and Hollingsworth; <, actual value is less than value shown; --, no sample; all values in nanograms per hexane sample]

Station name	Sample number	Total monochloro-biphenyls	Total dichloro-biphenyls	Total trichloro-biphenyls	Total tetrachloro-biphenyls	Total pentachloro-biphenyls
Ryan Playground	7	145	573	357	183	32.4
	8	708	2,700	1,630	902	153
Braided channel	5	269	1,270	1,080	630	100
	6	385	1,690	1,400	874	131
Central Avenue	3	227	999	946	635	98.8
	4	237	1,100	1,000	652	106
Baker Dam	1	125	606	583	392	57.7
	2	137	636	610	402	67.4

Table 13. Homolog data for polychlorinated biphenyls in hexane samples collected in PISCES samplers, lower Neponset River, Massachusetts.—Continued

[T&H, Tileston and Hollingsworth; <, actual value is less than value shown; --, no sample; all values in nanograms per hexane sample]

Station name	Sample number	Total hexachloro-biphenyls	Total heptachloro-biphenyls	Total octachloro-biphenyls	Total nonachloro-biphenyls	Decachloro-biphenyl
Paul's Bridge	17	12.8	<0.557	<0.743	<0.660	<0.286
	18	26.2	.718	<.845	<.671	<.332
Martini Shell	19	14.6	.318	<.317	<.211	<.195
	20	9.76	<.678	<.933	<.936	<.496
Incinerator Road	23	--	--	--	--	--
	24	1.70	<.587	<.821	0.473	<.369
Reservation Park	21	4.44	<.380	<.673	<.767	<.284
	22	5.23	<.507	<.712	<.723	<.337
Fairmont Avenue	15	20.1	6.59	1.26	<.647	<.308

Table 13. Homolog data for polychlorinated biphenyls in hexane samples collected in PISCES samplers, lower Neponset River, Massachusetts.—Continued

[T&H, Tileston and Hollingsworth; <, actual value is less than value shown; --, no sample; all values in nanograms per hexane sample]

Station name	Sample number	Total hexachloro-biphenyls	Total heptachloro-biphenyls	Total octachloro-biphenyls	Total nonachloro-biphenyls	Decachloro-biphenyl
	16	12.6	2.79	1.93	<.565	<.312
T&H dam upstream	13	11.8	1.39	.937	<.329	<.277
	14	19.4	3.69	<.608	<.396	<.192
T&H dam downstream	11	36.1	7.49	2.27	<.508	<.237
	12	33.9	6.11	<.803	<.423	<.346
Kennedy Playground	9	15.5	.916	<.338	<.421	<.304
	10	7.91	.334	<.226	<.227	<.220
Ryan Playground	7	3.94	<.350	<.220	<.410	<.251
	8	25.2	1.50	<.241	<.281	<.153
Braided channel	5	14.3	.625	<.345	<.321	<.239
	6	18.7	1.26	<.278	<.271	<.156
Central Avenue	3	15.1	.793	<.401	<.392	<.229
	4	14.9	1.22	<.209	<.394	<.115

Table 13. Homolog data for polychlorinated biphenyls in hexane samples collected in PISCES samplers, lower Neponset River, Massachusetts.—Continued

[T&H, Tileston and Hollingsworth; <, actual value is less than value shown; --, no sample; all values in nanograms per hexane sample]

Station name	Sample number	Total hexachloro-biphenyls	Total heptachloro-biphenyls	Total octachloro-biphenyls	Total nonachloro-biphenyls	Decachloro-biphenyl
Walter Baker Dam	1	8.94	<.268	<.623	<.236	<.177
	2	10.9	.347	<.301	<.305	<.156

Table 14. Total concentrations of polychlorinated biphenyls by congener and Aroclor in selected sediment samples, lower Neponset River, Massachusetts.

[Aroclor analysis done by the AXYS Analytical laboratory. USGS, U.S. Geological Survey; ΣPCBs, total concentration of polychlorinated biphenyls; ppb, parts per billion; <, actual value is less than value shown; D, duplicate]

USGS number	ΣPCBs by congener (ppb)	ΣPCBs by Aroclor (ppb)	Aroclors 1016 and 1242 (ppb)	Aroclor 1221 (ppb)	Aroclor 1232 (ppb)	Aroclor 1248 (ppb)	Aroclor 1254 (ppb)	Aroclor 1260 (ppb)
BGY-102	29	42	1.35	<0.172	<0.196	<0.299	28.0	12.7
BGY-104	1,054	1,561	112	<.36	<.645	<.82	1,270	179
BGY-105	13,843	14,073	8,630	<2.4	<9.45	<12.5	4,950	493
BGY-106	16,293	15,966	12,000	<3.89	<10.4	<19.5	3,340	626
BGY-112	16,458	10,182	6,930	<5.98	<13.7	<11.6	2,500	752
M2Y-002	230,845	196,000	196,000	<1,810	<4,640	<5,790	<12,200	<4,300
BGY-128	66,053	56,970	31,000	<161	<778	<895	24,100	1,870
M2Y-012	4,670	4,756	2,740	<.327	<1.74	<3.65	1,800	216
BGY-133	5,841	6,288	3,550	<.444	<1.74	<3.07	2,360	378
BGY-137	79,182	68,430	60,100	<301	<836	<2,520	6,170	2,160
BGY-102-D	28	42	1.86	<.105	<.231	<.446	26.9	13.1
BGY-128-D	59,660	51,830	27,000	<136	<626	<713	23,300	1,530

Table 15. Concentrations of polychlorinated biphenyl congeners in selected sediment samples, lower Neponset River, Massachusetts.

[e, estimated; IUPAC, International Union of Pure and Applied Chemistry; ppb, parts per billion; D, duplicate; <, actual value is less than value shown]

IUPAC	BGY-102 (ppb)	BGY-104 (ppb)	BGY-105 (ppb)	BGY-106 (ppb)	BGY-112 (ppb)	M2Y-002 (ppb)	BGY-128 (ppb)	M2Y-012 (ppb)	BGY-133 (ppb)	BGY-137 (ppb)	BGY-102-D (ppb)	BGY-128-D (ppb)
1	<0.0449	e1.08	55	531	1,080	21,100	<49.4	32.3	37.3	3,470	<0.0478	<69.4
2	<.047	<.19	.744	3.31	4.01	<528	<50.8	.927	.865	<92.2	<.05	<71.4
3	<.047	e.393	16	149	122	3,780	<50.8	16.8	16	649	<.05	<71.4
4+10	<.16	5.97	550	2,070	2,690	58,000	207	137	206	11,000	<.0981	241
5+8	<.0905	2.99	568	2,080	992	48,200	154	124	134	6,160	<.0555	152
6	<.0905	1.38	134	248	150	6,260	<84.8	35.7	39.7	1,790	<.0555	<67.3
7+9	<.0905	e.319	31.5	35.7	33.9	<951	<84.8	4.29	5.67	269	<.0555	<67.3
11	<.0948	e.122	20.5	24.2	21.5	<1,070	<95.1	5.86	6.37	247	<.0581	<75.4

Table 15. Concentrations of polychlorinated biphenyl congeners in selected sediment samples, lower Neponset River, Massachusetts.—Continued

[e, estimated; IUPAC, International Union of Pure and Applied Chemistry; ppb, parts per billion; D, duplicate; <, actual value is less than value shown]

IUPAC	BGY-102 (ppb)	BGY-104 (ppb)	BGY-105 (ppb)	BGY-106 (ppb)	BGY-112 (ppb)	M2Y-002 (ppb)	BGY-128 (ppb)	M2Y-012 (ppb)	BGY-133 (ppb)	BGY-137 (ppb)	BGY-102-D (ppb)	BGY-128-D (ppb)
12+13	e.248	e.352	54	45.6	55.4	<1,070	99.8	22.1	20	733	<.0581	75.6
14	<.0905	<.0739	<.56	<3.36	<3.15	<951	<84.8	<.051	<.195	<158	<.0555	<67.3
15	<.0948	1.87	380	466	375	4,920	970	151	164	2,030	.1	863
16+32	.0832	5.76	695	887	726	13,200	3,040	175	241	4,400	.122	3,060
17	<.0575	4.41	595	849	630	13,500	1,570	140	189	4,560	<.068	1,640
18	e.0678	5.95	251	255	229	1,930	1,560	118	157	1,460	.0849	16,70
19	<.0668	1.85	257	497	677	7,630	926	61.3	98.3	2,020	<.0789	945
20+21+33	.0788	3.91	104	49.8	53	<956	517	31.8	40.2	287	.0974	528
22	e.0528	2.26	143	67.8	71	<956	1,030	50.9	54.6	692	<.0478	1,090
23+34	<.0405	<.127	9.7	17.1	21.2	<956	<160	4.04	5.08	<172	<.0478	<129
24+27	<.0575	2.27	191	462	487	5,500	879	59.8	92	1,180	<.068	862
25	e.0431	3.25	264	205	238	2,130	596	86.1	105	2,000	<.0478	505
26	e.0545	5.43	290	330	355	4,140	1,290	138	166	3,410	.0642	1,170
28	.214	11.3	974	420	408	1,590	5,360	216	306	1,700	.25	5,280
29	<.0405	<.127	e1.81	<2.48	.931	<956	<160	<.361	<.36	<172	<.0478	<129
30	<.0668	<.209	<2.84	<4.1	.987	<15,80	<266	<.596	<.595	<286	<.0789	<214
31	.141	9.16	531	579	653	e6,100	1,090	263	337	6,480	.154	e856
35	<.04	<.125	7.8	<2.46	e5.71	<987	<166	2.55	3.92	<178	<.0473	<133
36	<.0405	<.127	e2.33	3.26	3.53	<956	<160	1.98	2.19	<172	<.0478	<129
37	<.04	<.125	133	49.3	64.6	<987	858	53.6	79.8	401	e.0595	830
38	e.0684	<.125	<1.77	e2.49	e17.2	<987	<166	5.77	e.474	<178	<.0473	<133
39	<.0405	.142	e3.13	3.64	5.17	<956	<160	2.64	2.33	<172	<.0478	<129
40	0.0869	2.09	66.1	37.1	35	<1,410	759	32.8	33.8	<616	<0.111	697
41+64+68+71	.442	17.8	705	485	523	7,190	5,590	269	293	3,490	.399	5,040
42+59	<.0538	5.4	196	147	138	1,470	2,100	91.8	98.4	1,040	.122	1,760
43+49	.525	22.1	598	484	535	6,030	4,180	231	264	3,730	.475	3,460
44	.428	17.8	319	213	190	1,790	3,650	157	172	1,270	.361	3,000
45	.0558	1.13	50.8	46	36.9	<931	706	23.1	26.5	<405	<.0728	699
46	<.0488	.761	31.7	17.7	19	<931	263	11.7	12.1	<405	<.0728	203
47+48+75	.337	12.3	536	526	603	6340	3,010	178	218	2,800	.325	2,560
50	<.0398	<.109	4.15	5.93	7.08	<752	<116	1.37	1.61	<327	<.0594	<92.6
51	.051	1.92	103	127	137	1,930	459	30.7	36.1	741	<.0728	467
52+73	.877	44.2	564	469	497	4,930	4,820	255	292	3,460	.877	4,160
53	.169	5.09	154	223	241	3,430	1,220	62.5	73	1,070	.188	1,140
54	<.0398	.211	8.17	12.1	20.2	<752	<116	2.49	3.17	<327	<.0594	<92.6

Table 15. Concentrations of polychlorinated biphenyl congeners in selected sediment samples, lower Neponset River, Massachusetts.—Continued

[e, estimated; IUPAC, International Union of Pure and Applied Chemistry; ppb, parts per billion; D, duplicate; <, actual value is less than value shown]

IUPAC	BGY-102 (ppb)	BGY-104 (ppb)	BGY-105 (ppb)	BGY-106 (ppb)	BGY-112 (ppb)	M2Y-002 (ppb)	BGY-128 (ppb)	M2Y-012 (ppb)	BGY-133 (ppb)	BGY-137 (ppb)	BGY-102-D (ppb)	BGY-128-D (ppb)
55	<.0413	.338	6.04	2.49	e2.48	<773	<119	1.49	<.425	<337	<.0616	<95.2
56+60	.106	5.62	308	106	107	<773	1790	69.1	76.7	<337	.116	1,550
57	<.0742	.683	18.4	31.6	26.2	<1,410	<219	6.86	9.13	<616	<.111	<174
58	<.0742	<.204	<2.31	<3.06	3.03	<1,410	<219	1.52	1.68	<616	<.111	<174
61+74	.118	5.78	265	114	126	<637	1,560	74.2	84.7	854	.0836	1420
62+65	<.0488	<.134	<1.52	<2.01	e1.06	<931	<144	<.596	<.502	<405	<.0728	<115
63	<.0742	1.4	<2.31	96.5	98	1,770	495	28.5	37.8	644	<.111	433
66+80	.322	14.5	444	170	189	<637	2,450	120	138	742	.351	2,030
67	<.0742	.886	<2.31	17.4	19.3	<1,410	221	10.4	12.3	<616	<.111	216
69	<.0488	<.134	3.42	4.61	6.16	<931	<144	1.03	1.73	<405	<.0728	<115
70+76	.296	22.2	431	165	173	<637	2,380	110	130	e354	.341	2,010
72	<.0538	e1.14	15.2	24.1	30.7	<997	<154	6.68	10.2	<434	<.0802	<123
77	<.0318	e3.19	e1.25	22.9	28.7	<595	367	19.6	27.7	<259	<.0474	270
78	.0591	<.452	1.43	<1.7	e2.14	<773	<119	.558	e1.13	<337	<.0616	<95.2
79	<.0413	.933	<1.26	<1.7	4.45	<773	<119	1.66	<.425	<337	<.0616	<95.2
81	.0427	1.11	4.75	3.28	3.31	<595	<91.9	1.64	2.29	<259	<.0474	<73.2
82	e.0893	4.02	23.3	13.7	14.3	<559	158	9.13	9.95	<154	<.058	133
83+108	e0.0884	4.01	18.6	22.8	19.6	<811	<125	8.16	10.1	<223	e0.0935	<107
84	.488	16	60.1	56	53	<739	399	26.5	32.6	e292	.4	402
85+120	e.242	11.1	59.8	42.7	40.7	<811	470	23.1	27.2	e406	.269	433
86+97	.534	21.1	87.5	55	58.4	<811	420	29.9	38.4	<223	.488	410
87+115+16	.595	32.5	110	69.6	<.782	<811	595	43.8	57.1	<223	.598	572
88+121	<.0778	<.197	1.26	<4.15	<.814	<841	<130	e.252	<.417	<231	<.0868	<111
89+90+101	1.79	74.5	223	182	197	975	940	78.8	108	643	1.86	985
91	.306	11.2	64.5	85.5	78	<841	371	27.3	34.1	422	.267	327
92	.369	14.7	49.3	74.6	73.9	<739	190	21.9	30.3	e261	.349	249
93+95	1.73	60	174	200	178	1,260	1,030	77.1	103	647	1.54	1,090
94	<.0778	.523	3.73	17.4	10.8	<841	<130	<.195	2.95	<231	<.0868	<111
96	<.0778	.484	5.77	7.84	6.65	<841	<130	2.55	3.11	<231	<.0868	<111
98+102	<.0778	2.34	19.6	27.1	24.5	<841	155	8.84	10.7	<231	<.0868	127
99	.741	31.1	132	98.3	111	<700	595	46.4	61.5	412	.71	575
100	<.0778	.491	4.39	7.54	10.5	<841	<130	1.8	2.81	<231	<.0868	<111
103	<.0778	.804	4.49	8.17	8.82	<841	<130	1.96	3.04	<231	<.0868	<111
104	<.0546	<.138	<.419	<2.91	.592	<609	<93.8	e.163	<.292	<168	<.0609	<80.4
105+127	.272	18.1	101	59.6	55.6	<610	416	29.4	34.2	<168	.301	390

Table 15. Concentrations of polychlorinated biphenyl congeners in selected sediment samples, lower Neponset River, Massachusetts.—Continued

[e, estimated; IUPAC, International Union of Pure and Applied Chemistry; ppb, parts per billion; D, duplicate; <, actual value is less than value shown]

IUPAC	BGY-102 (ppb)	BGY-104 (ppb)	BGY-105 (ppb)	BGY-106 (ppb)	BGY-112 (ppb)	M2Y-002 (ppb)	BGY-128 (ppb)	M2Y-012 (ppb)	BGY-133 (ppb)	BGY-137 (ppb)	BGY-102-D (ppb)	BGY-128-D (ppb)
106+118	1.01	54.6	202	143	150	<562	798	66.7	89.3	497	1.06	766
107+109	e.0806	4.32	19.3	15.8	15.8	<562	<86.7	6.29	8.42	<155	e.0596	<74.3
110	2.34	81.7	248	279	262	1,850	1,460	113	142	1,090	2.21	1,370
111+117	e.0753	.839	11.2	25	97.6	<811	<125	e.565	<.4	<223	<.0833	<107
112	<.0747	<.189	1.68	<3.98	3.01	<811	<125	.87	.873	<223	<.0833	<107
113	<.0683	e.257	1.38	<3.64	2.93	<739	<114	e.758	1.41	<203	<.0763	<97.6
114	<.0529	.903	7.55	3.64	4.29	<593	<91.3	2.11	2.48	<163	<.0591	<78.3
119	.0747	3.28	16.7	20.8	22.1	<811	<125	6.31	10	<223	<.0833	<107
122	<.0518	.505	3.29	<2.76	e1.55	<562	<86.7	1.03	1.12	<155	<.0578	<74.3
123	<.0518	1.86	6.82	4.68	5.37	<562	<86.7	2.31	2.9	<155	.0737	<74.3
124	e.0563	2.56	7.77	4.97	5.32	<559	<86.1	2.23	3.23	<154	<.058	<73.8
125	<.0747	<.189	2.93	<3.98	e1.48	<811	<125	e.494	.663	<223	<.0833	<107
126	<.0539	<.249	1.49	<2.87	1.83	<623	<96	.605	1.02	<171	<.0601	<82.2
128	.33	10.2	31.5	19	20.2	<588	<42.3	6.9	8.82	<204	.282	<50.6
129	.0797	2.54	8.26	4.88	4.79	<588	<42.3	1.57	2.14	<204	.0761	<50.6
130	.0879	3.32	10.3	8.07	8.26	<588	<42.3	2.69	3.57	<204	.0983	<50.6
131+142	<.0819	.934	3.33	2.04	1.84	<818	<58.8	.533	.995	<284	<.0512	<70.4
132+168	0.635	17	47.7	31.1	35.9	<553	118	12.5	16	<192	0.541	116
133	<.0819	.944	3.44	4.21	e4.77	<818	<58.8	.83	1.47	<284	<.0512	<70.4
134+143	.127	.296	12.8	10.4	9.93	<818	<58.8	3.12	4.27	<284	<.0512	<70.4
135+144	.408	10.2	31.8	28	28.5	<818	82.2	8.55	11.8	<284	.414	89.1
136	.437	11.2	33.1	27	28.1	<850	66.9	8.86	11.6	<295	.33	82.1
137	.115	4.15	12.2	8.02	8.43	<706	<50.8	2.46	4.21	<245	.0919	<60.7
138+163+164	2.7	74.7	225	147	166	<706	440	51.6	72.4	348	2.6	472
139+149	1.87	49.5	150	115	121	<818	359	37.4	51	344	1.8	310
140	<.0819	.418	1.68	1.33	1.58	<818	<58.8	<.46	<.894	<284	<.0512	<7.4
141	.37	8.56	28.3	17.1	18	<706	<50.8	6.43	8.63	<245	.334	<60.7
145	<.0877	<.215	<1.14	<1.17	<1.08	<850	<61.1	<.493	<.957	<295	<.0548	<73.1
146	.264	7.67	24.1	20.2	24.5	<663	<47.7	6.6	9.29	<230	.259	<57
147	<.0819	1.88	9.1	10.4	12.3	<818	<58.8	2.07	3.72	<284	<.0512	<70.4
148	<.0877	<.215	<1.14	<1.17	<1.08	<850	<61.1	<.493	<.957	<295	<.0548	<73.1
150	<.0877	<.215	<1.14	<1.17	<1.08	<850	<61.1	<.493	<.957	<295	<.0548	<73.1
151	.459	10.4	35.9	32	34.6	<850	99.6	9.32	12.6	<295	.396	79.4
152	<.0877	<.215	<1.14	<1.17	1.52	<850	<61.1	<.493	<.957	<295	<.0548	<73.1
153	1.97	50.8	153	99.2	118	<663	310	35.2	51.8	<230	1.89	294

Table 15. Concentrations of polychlorinated biphenyl congeners in selected sediment samples, lower Neponset River, Massachusetts.—Continued

[e, estimated; IUPAC, International Union of Pure and Applied Chemistry; ppb, parts per billion; D, duplicate; <, actual value is less than value shown]

IUPAC	BGY-102 (ppb)	BGY-104 (ppb)	BGY-105 (ppb)	BGY-106 (ppb)	BGY-112 (ppb)	M2Y-002 (ppb)	BGY-128 (ppb)	M2Y-012 (ppb)	BGY-133 (ppb)	BGY-137 (ppb)	BGY-102-D (ppb)	BGY-128-D (ppb)
154	<.0877	.798	3.47	5.29	5.8	<850	<61.1	1.01	1.69	<295	<.0548	<73.1
155	<.0531	<.13	<.713	<.708	<.656	<530	<38.1	<.298	<.579	<184	<.0332	<45.6
156	e.137	7.21	23.5	14.6	16.5	<610	<43.8	5.49	7.56	<211	.155	<52.4
157	<.0594	1.89	5.87	4.31	4.92	<611	<43.9	1.34	1.95	<212	e.0402	<52.5
158+160	.313	9.3	27.3	17.6	19	<706	<50.8	6.08	8.8	<245	.313	<60.7
159	<.0699	.181	1.04	<.932	e.876	<706	<50.8	<.393	<.762	<245	<.0437	<60.7
161	<.0667	<.164	<.893	<.89	<.824	<663	<47.7	<.375	<.727	<230	<.0417	<57
162	<.0699	.358	1.66	1.02	<.863	<706	<50.8	<.393	<.762	<245	<.0437	<60.7
165	<.0667	<.164	<.893	<.89	<.824	<663	<47.7	<.375	<.727	<230	<.0417	<57
166	<.0699	.459	1.43	<.932	<.863	<706	<50.8	<.393	<.762	<245	<.0437	<60.7
167	.0929	2.96	8.45	5.93	6.23	<559	<40.2	2.08	2.99	<194	.0723	<48
169	<.0571	<.14	<.818	<.762	<.705	<607	<43.7	<.321	<.623	<211	<.0357	<52.2
170+190	.556	8.98	24.4	31.8	38.1	<606	99.4	10.8	18	<305	.708	84.5
171	e.107	1.81	4.36	6	6.83	<531	<70.7	1.8	3.43	<267	.108	<68.4
172+192	.0659	1.01	2.53	3.67	4.53	<531	<70.7	1.06	2.18	<267	<.082	<68.4
173	<.0479	<.175	.357	<.548	<1.29	<531	<70.7	<.411	<.791	<267	<.082	<68.4
174+181	.358	5.38	14.3	17.8	20.7	<524	73.6	5.87	10.2	<264	<.0829	73.6
175	<0.0472	0.221	0.698	1.11	<1.27	<517	<68.9	<0.406	<0.78	<260	<0.0808	<66.7
176	<.0368	.738	1.79	2.42	2.83	<401	<53.4	.824	1.34	<202	<.0629	<51.7
177	.177	2.97	8.13	12	15.2	<524	<69.8	3.97	6.36	<264	.186	<67.6
178	<.0472	.88	2.52	4.95	5.96	<517	<68.9	1.37	2.18	<260	<.0808	<66.7
179	.152	1.99	5.29	8.65	10.2	<401	<53.4	2.66	4.24	<202	.133	<51.7
180	.993	12.8	36.7	45.7	54.8	<531	163	15.9	28.7	<267	.908	132
182+187	.415	5.99	17.1	26.3	31.4	<517	77.1	8.28	14.5	<260	.455	71.3
183	.234	3.4	8.41	10.7	13	<524	<69.8	3.7	6.57	<264	.233	<67.6
184	<.0368	<.134	<.179	<.421	<.99	<401	<53.4	<.316	<.607	<202	<.0629	<51.7
185	<.0485	.518	1.39	1.74	1.97	<524	<69.8	.558	.985	<264	<.0829	<67.6
186	<.0472	<.172	<.231	<.541	<1.27	<517	<68.9	<.406	<.78	<260	<.0808	<66.7
188	<.0368	<.134	<.179	<.421	<.99	<401	<53.4	<.316	<.607	<202	<.0629	<51.7
189	<.0368	.273	.971	1.31	1.15	<447	<59.6	<.316	.668	<225	<.063	<57.7

Table 15. Concentrations of polychlorinated biphenyl congeners in selected sediment samples, lower Neponset River, Massachusetts.—Continue

[e, estimated; IUPAC, International Union of Pure and Applied Chemistry; ppb, parts per billion; D, duplicate; <, actual value is less than value shown]

IUPAC	BGY-102 (ppb)	BGY-104 (ppb)	BGY-105 (ppb)	BGY-106 (ppb)	BGY-112 (ppb)	M2Y-002 (ppb)	BGY-128 (ppb)	M2Y-012 (ppb)	BGY-133 (ppb)	BGY-13 (ppb)
191	<.0479	.269	.895	1.23	1.64	<531	<70.7	<.411	<.791	<267
193	.0491	.647	2.11	2.92	3.51	<531	<70.7	.933	1.7	<267
194	.191	2.22	11.9	17.4	21.7	<712	<159	5.53	9.27	<311
195	<.0832	.86	3.64	5.17	6.64	<712	<159	2.05	2.6	<311
196+203	.183	3	12.6	17.7	21.7	<663	<148	6.27	10.2	<289
197	<.0797	<.108	.456	<.664	<1.33	<663	<148	<.592	<.545	<289
198	<.0797	e.127	.355	1.26	1.44	<663	<148	<.592	<.545	<289
199	.163	2.43	10.1	15.9	20.3	<663	<148	e7.52	11.4	<289
200	<.0797	.365	1.56	2.11	2.23	<663	<148	.782	1.08	<289
201	<.0797	.39	1.58	2.13	2.62	<663	<148	.813	1.18	<289
202	<.0589	.352	1.72	2.34	3.34	<477	<106	.793	1.41	<208
204	<.0797	<.108	<.291	<.664	<1.33			<.592	<.545	
205	<.0597	e.0873	.561	<.497	<.998	<514	<115	<.444	<.408	<224
206	<.122	1.48	5.69	6.91	8.09	<915	<143	2.52	4.55	<194
207	<.107	<.167	.587	1.03	<.931	<793	<124	<.61	<.738	<168
208	<.107	.558	1.72	2.41	2.4	<793	<124	.843	1.57	<168
209	.072	1.06	3.64	3.46	3.68	<418	<93.5	1.48	2.01	<112

Table 16. Homolog data for polychlorinated biphenyls in selected sediment samples, lower Neponset River, Massachusetts.

[USGS, U.S. Geological Survey, ppb, parts per billion; <, actual value is less than value shown; D, Duplicate]

USGS number	Total monochlorobiphenyls (ppb)	Total dichlorobiphenyls (ppb)	Total trichlorobiphenyls (ppb)	Total tetrachlorobiphenyls (ppb)	Total pentachlorobiphenyls (ppb)
BGY-102	<0.0470	<0.160	0.52	3.91	10.2
BGY-104	<.190	12.2	55.7	184	454
BGY-105	71.8	1,740	4,450	4,830	1,670
BGY-106	683	4,970	4,680	3,550	1,520
BGY-112	1,210	1,320	4,620	3,800	1,510
M2Y-002	24,900	117,000	49,500	34,900	4,090

Table 16. Homolog data for polychlorinated biphenyls in selected sediment samples, lower Neponset River, Massachusetts.

[USGS, U.S. Geological Survey, ppb, parts per billion; <, actual value is less than value shown; D, Duplicate]

USGS number	Total monochlorobiphenyls (ppb)	Total dichlorobiphenyls (ppb)	Total trichlorobiphenyls (ppb)	Total tetrachlorobiphenyls (ppb)	Total pentachlorobiphenyls (ppb)
BGY-128	<50.8	1,430	18,700	36,000	8,000
M2Y-012	50.0	481	1,410	1,800	638
BGY-133	54.2	576	1,880	2,060	833
BGY-137	4,120	22,300	28,600	19,800	3,710
BGY-102-D	<.05	.10	.77	3.64	10.1

Table 16. Homolog data for polychlorinated biphenyls in selected sediment samples, lower Neponset River, Massachusetts.

[USGS, U.S. Geological Survey, ppb, parts per billion; <, actual value is less than value shown; D, Duplicate]

USGS number	Total monochlorobiphenyls (ppb)	Total dichlorobiphenyls (ppb)	Total trichlorobiphenyls (ppb)	Total tetrachlorobiphenyls (ppb)	Total pentachlorobiphenyls (ppb)
BGY-128-D	<71.4	1,330	17,600	31,100	7,820

USGS number	Total hexachlorobiphenyls (ppb)	Total heptachlorobiphenyls (ppb)	Total octachlorobiphenyls (ppb)	Total nonachlorobiphenyls (ppb)	Decachlorobiphenyl (ppb)
BGY-102	10.3	3.00	0.54	<0.122	0.07
BGY-104	288	47.9	9.61	2.04	1.06
BGY-105	894	132	44.50	8.00	3.64
BGY-106	634	178	64.0	10.4	3.46
BGY-112	696	212	80.0	10.5	3.68
M2Y-002	<850	<606	<712	<915	<418
BGY-128	1,480	414	<159	<143	<93.5
M2Y-012	213	57.7	16.2	3.36	1.48
BGY-133	297	101	37.2	6.12	2.01
BGY-137	692	<305	<311	<194	<112
BGY-102-D	9.65	2.73	.68	<.136	<.0699
BGY-128-D	1,440	361	<164	<120	<111